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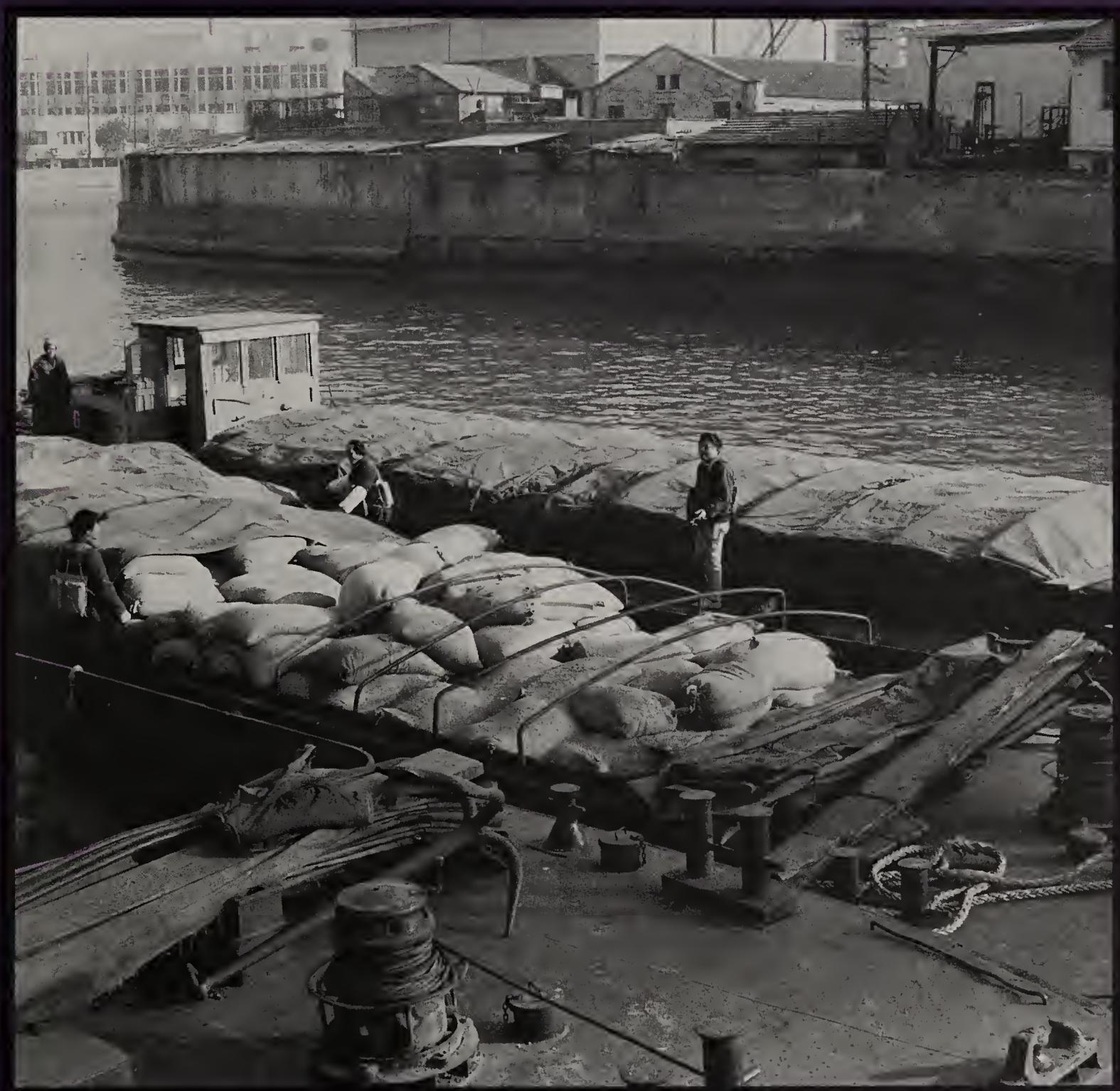
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Economics Editor
Frederick W. Crook
(202) 219-0002

Technical Editor
Martha R. Evans

Authors
M. Christina Valdecanas
W. Hunter Colby
Frederick W. Crook
Xinshen Diao
William Lin
Zhi Wang

Word Processing
Beverly Payton

Graphics
Wilma Davis
Anne E. Pearl

Layout/Design/Tables
Anne E. Pearl
Wynnice Napper

Situation and Outlook Series

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Summary

U.S. agricultural exports to China for FY 1995/96 are expected to reach \$2.5 billion, about the same as in calendar 1995 because of continued shipments of wheat, corn, soybeans, cotton, and other agricultural products. U.S. exports for 1995 totaled \$2.6 billion, up sharply from \$1 billion in 1994. Important changes have been taking place in China's agricultural trade because it is beginning to export more processed and high-value products and import more land-intensive and semi-processed goods. China shifted from a net grain exporter in 1994 to a net grain importer in 1995.

China's economy grew 10.2 percent in 1995 compared with 13.4 percent a year earlier. Authorities aim to slow the real economic growth rate in 1996 to less than 10 percent. Inflation during the year was limited to 14.8 percent compared with 21 percent in 1994.

China's leaders project total grain output will rise from 466 million tons in 1995 because of increased acreage and heavier input use. Local cadres likely will use administrative means and political pressure to encourage farmers to expand area sown to grain. Grain prices rose in 1995 and the government raised its fixed quota price again in 1996. Rice, wheat, and corn production are projected to rise because of increases in area. Net grain imports for 1996 likely will be below the record 19.6 million tons imported in 1995 because of China's record crop in 1995 and because of expanding production and high world grain prices in 1996. Rice imports for calendar 1996 will likely exceed 1995's 750,000 tons, and will include both lower quality rice for poorer urban residents and higher quality Thai rice for higher income residents. Wheat imports for 1996/97 are projected to decrease to 10 million tons, down 2 million from a year earlier. Corn imports are projected to be the same as 1995/96 at 2 million tons.

Total oilseed output for 1995 reached a record 43.4 million tons, up 2.4 percent from a year earlier. Demand for edible oil outstripped supplies and imports totaled 3 million tons in 1995/96, down from 4.2 million tons a year earlier.

Cotton imports fell 31 percent in 1995 to an estimated 610,000 tons for August/July 1995/96. Domestic production for 1995/96 rose 9.8 percent to 4.77 million tons. Planners believe area sown to cotton for 1996 will be lower than in 1995.

Meat output rose 15 percent in 1995 to a record 42.5 million tons even though grain production in the previous year fell by 2.5 percent. Year-end hog numbers for 1995 rose 6.5 percent to 441 million. Pork, poultry, eggs, and milk output expanded in 1995.

Domestic sugar supply is expected to exceed demand in 1995/96, prompting a significant decline in sugar imports but

little change in exports from the previous year. The long-term trend in China is for growing imports of raw sugar to meet income-driven increases in consumption.

China's leaders have begun to debate the benefits and costs of their long-held "grain self-sufficiency" strategy. In 1995, central leaders promoted the "grain bag" and "market basket" policies to boost urban food supplies. The year 1996 begins the first year in the ninth 5-year plan (1996-2000). Preliminary texts of the plan indicate that authorities intend to increase investments in the agricultural sector, food processing, and transportation.

Chemical fertilizer, pesticide, and plastic sheeting supplies increased in 1995. Government investment in the agricultural sector hit a low point in 1993 but rose in 1994 and 1995. China's Ministry of Agriculture published its first outlook and situation report in 1995. This was a first step toward providing producers and consumers with basic information about China's rural economy. During the eighth 5-year plan (1991-95), China added 112,000 kilometers of highway and constructed more than 100 deep water berths. Still, transportation remains a bottleneck for development, and authorities plan to expand road, rail, and port capacity to the year 2000.

Contemporary grain storage programs rest on 2,000 years of tradition. China's grain stocks are very large but are not likely to affect international grain trade in the short run as long as stock policies remain stable. Changes in stock policies probably affected wheat imports and corn exports during 1991-1993. Growth of on-farm stocks slowed in 1994 because of the decrease in overall grain production. Farmers hold large on-farm stocks because of fear of crop failures, a hedge against inflation, and as insurance against illness, disability, and market disruptions.

An increasing portion of China's vegetables are sold through open market channels, while government procurement channels play a limited role in vegetable marketing. In 1995, China's vegetable exports reached a record US\$2.4 billion, making it one of the largest vegetable exporting countries in the world. U.S. vegetable exports to China increased from US\$3 million in 1994 to US\$5 million in 1995. China's vegetable exports to the United States increased from US\$107 million in 1994 to US\$ 136 million in 1995.

In 1997, China regains sovereignty over Hong Kong, and the territory is bracing itself for the changes to come. Compared with the political sphere, changes within Hong Kong's agricultural sector and agriculture trade will not be far reaching. Rather, under the stipulations of the Basic Law, which will govern Hong Kong after 1997, the Territory will maintain its commercial autonomy, and trade flows should be largely undisturbed.

Soft Landing in 1995

As the country enters the first year of the Ninth 5-Year Plan (1996-2000), China's economic policymakers have reiterated their commitment to continued reform. Although economic growth and price inflation in 1995 remained in double digits, the economy performed much closer to initial targets than in previous years. While controlling inflation remains a top priority, the economic leadership is likely to loosen some macroeconomic controls under pressure to create more jobs and maintain strong economic performance. Short-term policies and administrative measures for the agricultural sector will likely maintain current levels of production. Further changes in investment laws and import regulations are also expected, and China's economy is forecast to grow at a pace just under 10 percent annually for the rest of the century. [M. Christina Valdecañas, (202) 501-6133]

With overall annual economic growth and inflation falling in the range of initial targets, China's economic policymakers declared themselves successful in attaining a "moderate" level of economic growth of around 10 percent in 1995. Restrictions on credit and fewer approvals for new investment projects helped prevent economic overheating and dampened inflationary pressures.

Although China continues to make progress in reforming the banking sector and foreign exchange rules, the leadership has remained hesitant to take on more controversial steps such as reform of the debt-ridden, state-owned enterprise sector. Such underlying inconsistencies within the economy are expected to challenge continued growth in the years ahead.

Controlling Inflation

After failing to meet their economic targets for 1994, China's economic policymakers began 1995 with a push for greater control of the country's credit sector. Following the policies set forth in Vice Premier Zhu Rongji's 16-point proposal of 1993, China embarked upon a more intensive course of controlling credit and investment spending. These policies included caps on fixed investment spending, restraints on existing credit, and crackdowns on unauthorized lending.

The initial result of these programs was to temper economic growth by lowering the rate of industrial production. The number of approvals granted for new projects was restricted as the country's leaders maintained a tighter grip on the money supply. However, fearing possible unrest due to unemployment, the government continued to aid ailing state-owned firms. The additional credit granted to inefficient state firms led to inflationary pressures and increased food prices, especially in urban areas.

Nevertheless, by the end of 1995, the credit-tightening policies for new ventures, coupled with other administrative controls, such as grain rationing and postponing price reforms, did work to control inflation. Having planned annual growth of 10 percent for the year, China's economy came quite close to its target, registering overall economic growth of 10.2 percent in 1995. Total domestic output reached \$695.6 billion and inflation was kept at a year-on-year growth of only 14.8

percent, compared with more than 21 percent in 1994. Official urban unemployment rose slightly to 2.9 percent, and real per capita GDP averaged \$485 throughout the country.

Although real per capita income continues to increase, the gap between rural and urban incomes has widened (figure 1). From 1986-95, average real urban per capita income more than tripled, while real rural per capita income only doubled. Beijing is also concerned with the continued disparity among the country's geographical regions.

Problems over the government's debt situation also persisted in 1995. China's government deficit (including payment on principal) grew more than 30 percent. Assuming continued hesitancy on the part of Beijing to take steps to reign in money-losing state-owned enterprises, the total government deficit is expected to rise to more than \$23 billion in 1996.

External Relations Flourish

China's external account had a good year in 1995 with overall trade rising to more than \$280 billion—nearly 18 percent above 1994 levels (appendix table 9). Although imports

Table 1--China's macroeconomic indicators, 1994-95

Indicator	units	1994	1995
Population	billions	1.2	1.2
GDP growth	percent	13.4	10.2
GDP	US\$ billion	508.2	657.8
Change in CPI	percent	21.7	14.8
Currency in circulation	US\$billion	87.9	95.0
Total state revenue	RMB billion	518.2	593.2
Total state expenditures	RMB billion	582.0	651.8
State budget deficit	RMB billion	63.8	58.6
Fixed asset investment	US\$billion	197.0	234.0
Exports	US\$billion	121.0	148.8
Imports	US\$billion	115.7	132.1

Sources: SSB, *Economic Situation In 1995 and Outlook for 1996*; DRI/McGraw Hill, *World Market Reports*; SSB, *Statistics Communiqué for 1995*.

increased to \$132 billion, exports grew by more than 23 percent to \$148 billion and helped China maintain a trade surplus of \$16.7 billion in 1995 (table 1). Overall, China ranked as the world's 11th largest trader, conducting trade with more than 220 countries (figure 2).

Continued industrialization and rising per capita income remained the predominant force behind China's strong trade performance of 1995. However, some of the increase in trade levels was due to individual policies undertaken in the past 2 years. For example, a reduction in the value-added tax rebate from 17 percent to 14 percent in July 1995 contributed to increased exports as exporters rushed to ship their goods before the new rates took effect.

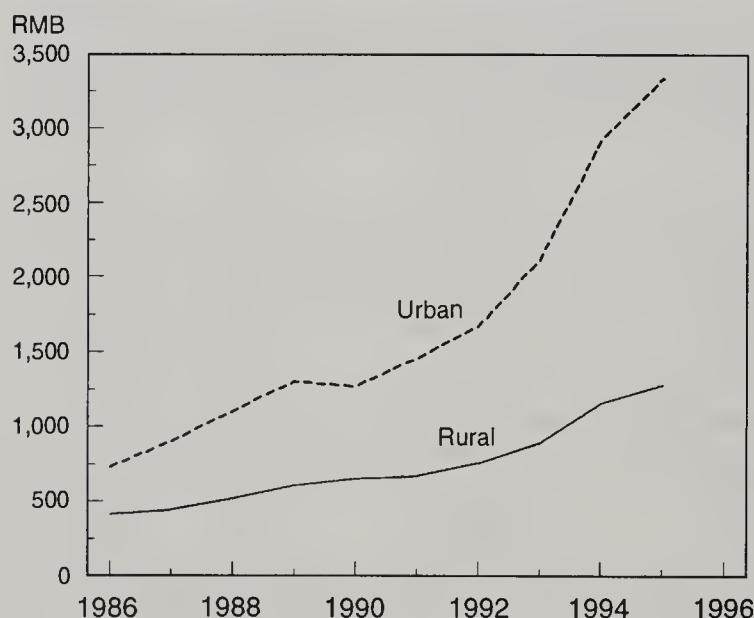
Capital flows into China were likewise healthy during 1995. Direct foreign investment in China increased 11 percent and the country accumulated foreign exchange reserves in excess of \$70 billion. A total of 120,000 foreign-funded enterprises were operating in the country by the end of 1995. China received roughly \$11.7 billion in foreign government loans or concessional loans from countries and international financial institutions.

Growth by Sector

According to China's State Statistical Bureau, most sectors of China's economy performed well during the past year. Partially due to government policies restricting the levels of new investment, industrial output for China grew more slowly in 1995, but still showed a year-end increase of 14 percent, with total output reaching nearly \$298 billion. Consumer-oriented industries continued to outpace the country's basic industries.

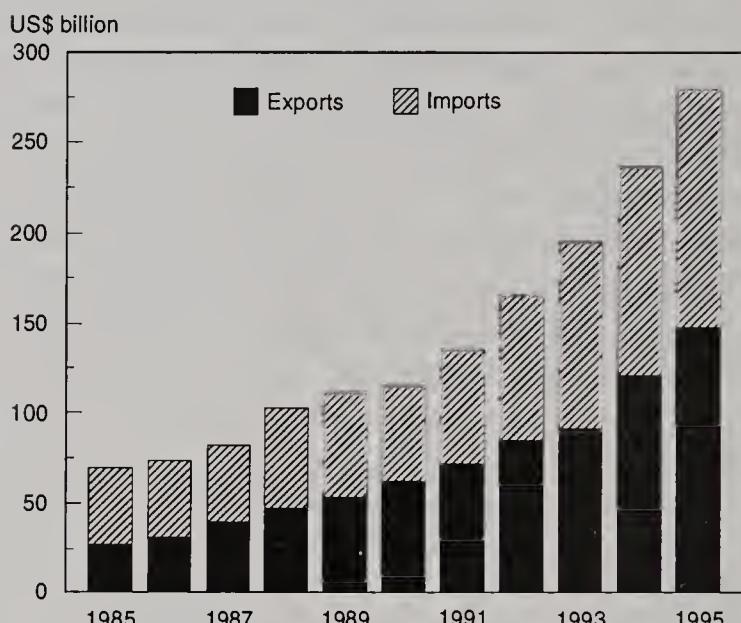
In 1995, foreign, joint, and cooperative ventures led total industrial production, registering 19 percent growth, followed by collective enterprises which posted 15.8 percent growth.

Figure 1
Gap Between Urban and Rural Income Widens



Source: USDA, ERS, Database. For a table of Renminbi (RMB) US\$ exchange rates see appendix table 14.

Figure 2
Total Trade Continues To Rise



Source: Asian Development Bank.

Light industry grew more than 16 percent while heavy industry grew 12 percent. State-owned enterprises grew approximately 7 percent.

China's State Statistical Bureau reported that agricultural output grew by 4.5 percent in 1995, reaching a value of more than \$132 billion. Total grain output was reported to have increased to 465 million tons, a 4.5-percent increase over 1994. Oilseeds, cotton, and meat production increased 13.1 percent, 3.7 percent, and 11 percent, respectively. In March, China's Ministry of Agriculture announced that the country was the world's largest fruit producer, harvesting approximately 39 million tons in 1995.

However, due in large part to the continued drain on the country's credit system brought on by China's debt-ridden, state-owned enterprises, China's banking sector failed to make as much progress in 1995. Although the central bank law was passed by the National People's Congress in March 1995 and stipulated that the People's Bank of China has independent control of the country's monetary policy, many creditors found themselves pressured by the state to continue funding state-owned enterprises throughout 1995. An estimated 40-percent of all state firms were in debt, and triangular debt (debt between banks, state firms, and state-firm suppliers) topped \$84.3 billion.

Another Good Year?

The State Statistical Bureau estimates that China's economy will grow 9.7 percent during 1996, with inflation hovering around 10 percent. China's economic policymakers hope to use the 1996 economic agenda as a springboard for the Ninth 5-Year Plan period, focusing on those areas which need the most attention. Many large-scale projects are slated to begin this year.

In March, Premier Li Peng laid the groundwork for the year's economic agenda in his address to the National People's

To 2000 and Beyond

In addition to setting yearly targets, China continues to be governed by an economic 5-Year Plan (FYP), which provides a blueprint for development within the major economic sectors of the economy. The first year of each plan is usually marked with broad proposals by sector for major projects and production targets the leadership hopes to attain.

The main objective of the Ninth 5-Year Plan (1996-2000) will be to maintain "rapid and healthy development" of the economy by increasing its "overall quality and efficiency." The major tenets of the plan include increasing productivity within the industrial sector; providing needed infrastructure and investment in the rural sector; and developing the country's tertiary industry; modernizing the country's information distribution system; developing science, technology and education programs; and coordinating economic development among different regions with the goal of forming regional economies, and balancing growth rates among China's regions.

Plans for Agriculture

Strengthening the country's rural economy is a high priority in the Ninth 5-Year Plan. Increasing efficiency and output will not only raise the standard of living for China's farmers, but will also lessen inflationary pressures by keeping food prices low. To this end, China's government will encourage steady growth in commodities such as grain, cotton, and edible oils. Efforts will also be made to develop local industries to complement the agricultural sector.

Infrastructure modernization is a key element in the rural program. China hopes to expand the area of land under irrigation and explore other types of water-management techniques to bring about higher yields. In addition, China will devote resources to upgrading low-yield farmland and to developing scientific methods to increase yields and improve efficiency.

Source: *Xinhua*, Beijing, 4 October 1995.

Congress. Li declared controlling inflation as the country's "top priority" and reiterated the government's commitment to state-owned enterprise reform. In addition, he announced that there would be a 32-percent increase in fixed asset investment for 1996, and on May 1, the Central Bank lowered the interest rate by 0.75 percent to ease some of the burden on debt-ridden firms.

Coupled with the suspension on subsidies for long-term savings rates on April 1, the move to decrease interest rates suggest confidence among the leadership that past policies have given them adequate control over inflation and a greater willingness to allow more expansion within the economy. Since the beginning of the year, the market has determined the inter bank loan rates. The Central Bank maintains bank regulations, and China is hoping to introduce a floating interest rate regime.

For agriculture, Li promised further assistance to fortify crop harvests. Agricultural investment and rural development are to be one of the key targets in the coming years. Government investment in agriculture during 1995 made up only 1.9 percent of total investment in fixed assets.

In 1996, China's external trade and current account balances are likely to fall below the record levels set in 1995. Relaxation of trade controls have already spurred higher imports. Import permits and quotas on motor vehicles and engines were discontinued on December 31, 1995. Import quotas no longer exist for alcoholic beverages and chemical products;

however the Ministry of Foreign Trade and Economic Cooperation suggested that quotas for cereals and vegetable oils will remain in some form.

By the first quarter of 1996, China's trade surplus shrunk to \$1.15 billion as imports increased by 23.3 percent over the same period in 1994 and exports declined by 8.7 percent. Coupled with easing credit, lower import prices resulting from a weaker Japanese yen will further increase China's demand for imported commodities. China's exporters likely will not be able to repeat the surge of shipments experienced in 1995 to balance the increased capital import requirements brought about by higher allowances for fixed investment spending. The country will likely maintain a trade surplus, but at lower levels than 1995.

During 1996 and Beyond

Whether Beijing is able to meet the targets for 1996 and beyond will depend largely on the leadership's ability to reform the weaker parts of the economy. Much of the success in keeping consumer prices relatively low during 1995 was attributed to government price controls rather than advancing price reform. Expected reforms within the financial sector will be instrumental in tempering the economy-wide repercussions of failing state enterprises. Unless the growing triangular debt is addressed, pressures for increased credit will likely result in greater inflation, as will the need for larger budget outlays to fund the projects called for in the Ninth 5-Year Plan and the need to create more jobs for China's growing work force.

For the long term, China's economy will be tested on its ability to integrate the various regions and equalize levels of growth across the entire country. Moreover, as noted in the proposal for the Ninth 5-Year Plan, growth within different sectors of the economy must be balanced. For China's agriculture, this will mean continuing to modernize the country's rural base and developing local industries to support agricultural activities. In industry, growth in basic industry must be brought up to the level of consumer- and export-oriented operations. Without such broad ranging developments and strengthening of the country's economic fundamentals, China will likely find meeting its targets for 1996 and future years a difficult task.

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Agricultural Imports Up, Agricultural Exports Down

China's agricultural imports jumped 75.8 percent while exports fell 1.7 percent in 1995. China became a net importer of grains and other land-intensive products and is beginning to export more processed and high value-added agricultural products. U.S. farm exports to China in 1995 reached a record US\$2.63 billion, doubled from 1994. [Wang Zhi (202) 219-0993]

In 1995, China's agricultural trade (exports and imports) rose to US\$23.81 billion, an increase of 25 percent over last year. The increase stemmed from imports, which jumped 75.8 percent to \$11.55 billion, while exports decreased for the first time in recent years, down by 1.7 percent to \$12.26 billion (1). The boost in imports came from a sharp increase in the purchase of grains from the international market, while the decrease in exports was because of a dramatic drop in corn, rice, and cotton shipments. China's agricultural net trade structure is becoming consistent with its production resource endowments. It seems that China is starting to export more processed and high value-added agricultural products and import more land-intensive and semi-processed agricultural commodities. In 1995, China shipped more than 75 percent of its agricultural exports to Asian markets. About 40 percent of China's agricultural imports came from the United States and Canada. U.S. agricultural exports to China in 1995 more than doubled that of 1994, reaching a record US\$2.63 billion.

Commodity Structure of China's Agricultural Trade

There were dramatic structural changes that took place in China's agricultural trade in 1995 (appendix tables 5,6,7, and 8). First, China shifted from a net grain exporter in 1993 and 1994 to a net grain importer. Its total cereal exports declined by 95 percent, while imports increased by more than 120 percent, leading to a 20-million ton (all tonnage is in metric tons unless otherwise stated) net grain import position. It was a net cereal exporter for nearly 6 million tons in 1993 and 2 million tons in 1994. Among the net grain imports in 1995, there were 11.6 million tons of wheat, 5 million tons of corn (8.7 million tons net exports in 1994), and 1.5 million tons of rice (1 million tons net exports in 1994). Second, China nearly doubled its net cotton imports (from 0.39 million tons in 1994 to 0.72 million tons in 1995). Third, there was a dramatic increase in exports of processed agricultural products. For instance, exports of fresh and frozen pork increased by 50 percent (to 150,000 tons), exports of vegetable and fruit products increased by 33 percent (to US\$1.08 billion), and exports of tobacco products increased by 45 percent (to US\$1 billion).

There are short- and long-term reasons for this shift. The short term reason for the structural shift was the 2.5 percent decrease of grain output in 1994, along with a vigorous grain export position shipping out 7.94 million tons during 1993 and 1994, which caused domestic grain shortages and price surges in early 1995. China's domestic open market grain prices exceeded international prices by 30 to 50 percent. To stabilize the grain market and balance the supply and demand for food,

feed, and industrial use, the state constrained grain exports and increased imports.

However, there were profound long-term economic forces at play as well. To better understand the overall picture of the structural change of China's agricultural trade last year, we aggregated agricultural trade data according to codes 1-24 in the "Harmonized Commodity Description and Coding System" (HS) from China's General Administration of Customs into four broad categories based on their degree of processing and readiness for direct consumption.

Table 2 presents China's total agricultural trade data (HS 1-24) (2) separated into four major components: bulk commodities; intermediate processed goods; horticultural products; and consumer-ready goods (3). Figure 3 shows the relative size of the four broad commodity groups for China's agricultural exports and imports.

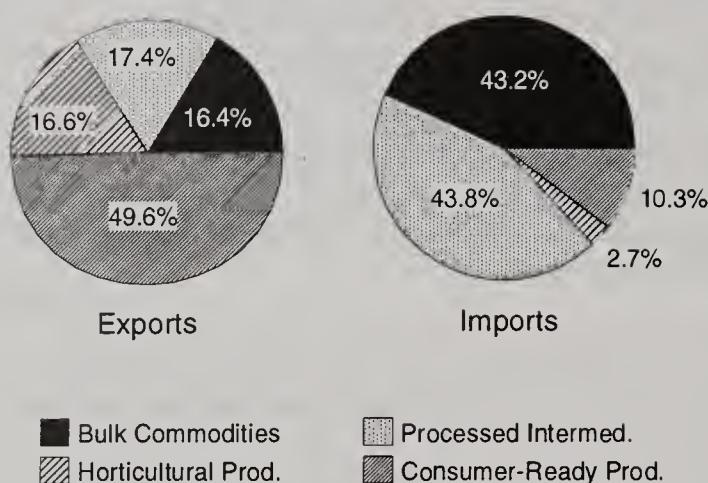
In 1995, half of China's agricultural exports were consumer-ready processed goods, while nearly 90 percent of its agricultural imports were bulk commodities and processed intermediates. The net trade data in table 2 reveals that China is a net importer of bulk and processed intermediate agricultural products, but a net exporter of horticultural and consumer-ready processed agricultural commodities. This net trade structure clearly shows that China's agricultural trade behavior is becoming consistent with its factor endowments and comparative advantage: a huge population and rural labor force relative to available arable land area, and may reflect an important shift in China's agricultural trade policy from grain self-sufficiency to limited self-sufficiency. By importing more land-intensive products such as grains, oilseeds, cotton, and other bulk commodities and semi-processed goods for further processing and re-exporting, and by exporting more labor-intensive, highly processed, high value-added agricul-

Table 2--Total and agricultural trade of China, 1995

	Exports	Imports	Balance
Million U.S. dollars			
Total	148,769.7	132,078.2	16,691.6
Agriculture (HS 1-24)	13,709.8	9,550.6	4,159.2
Ag. Share (in percent)	9.2	7.2	24.9
Bulk Commodities	2,245.2	4,127.8	-1,882.6
Processed Intermediates	2,388.9	4,181.0	-1,792.2
Horticultural Products	2,281.4	257.1	2,024.4
Consumer-ready Products	6,794.3	984.7	5,809.0

Source: Aggregated from *China's Customs Statistics*, General Administration of Customs of the PRC, December 1995.

Figure 3
Structure of China's Agricultural Trade, 1995



Source: China's Customs Statistics, Economic Information Agency, December 1995.

tural products to the international market, China will be able to further improve its efficiency of agricultural production resource allocations and increase farm income. Future domestic economic reform and foreign trade liberalization as China implements its WTO commitments, will reinforce these market forces and could well push China's agricultural production and trade structure along this path for years to come.

Geographical Distribution of China's Agricultural Trade

The geographical distribution of China's total and agricultural trade for 1995 is shown in table 3. The top five agricultural suppliers to China were the United States, Association of South East Asia Nations, (ASEAN7, includes Indonesia, Malaysia, Thailand, Philippines, Singapore, Burma, and Vietnam), European Union (EU15), Canada, and the Latin American Newly Industrialized Countries (LNIC3, includes Argentina, Chile and Brazil). More than 70 percent of China's agricultural exports went to Japan, Hong Kong, Macao, and Taiwan (CH3), Korea, and ASEAN countries.

Table 4 presents the market share of China's agricultural imports according to suppliers, while table 5 shows China's agricultural exports by destination. In the bulk goods market, the United States and Canada (40 and 24 percent, respectively) were dominant players, but the EU15 and ASEAN7 also played an important role (16 and 11 percent respectively). The United States and ASEAN7 were the two largest agricultural suppliers to China during 1995, but were quite different in what they shipped. U.S. exports led in the bulk and consumer-ready goods market, which were either land intensive and/or less expensive to transport. The ASEAN7 supplied more than half of China's horticultural imports and nearly one third of processed intermediate commodity products because of their close proximity relative to the U.S. and Canada. Japan, Russia, and Latin American NICs were minor suppliers in terms of total farm products. Latin American

Table 3--Geographical distribution of China's agricultural trade, 1995

	Total Imports	Total Agriculture	Total Exports	Total Agriculture
	Million U.S. Dollars			
USA	16,118.0	2,392.2	24,711.3	697.1
Canada	2,681.3	1,122.8	1,532.6	82.2
EU15	23,437.6	1,182.7	19,831.3	1,352.6
AUS/NZL	2,930.9	381.5	1,858.3	66.3
Japan	29,004.8	244.2	28,462.7	4,414.5
CH3	23,503.6	193.8	39,875.3	3,497.1
ASEAN7	9,883.2	2,034.2	10,339.6	1,580.4
Korea	10,356.9	95.9	7,175.4	749.3
Russia	3,798.6	143.0	1,664.7	511.0
India	397.5	58.2	765.3	36.6
LNIC3	1,832.4	853.0	1,443.1	34.2
ROW	8,133.0	849.1	11,110.1	688.4

Source: Aggregated from *China's Customs Statistics*, General Administration of Customs of the PRC, December 1995.

Table 4--Market share of China's agricultural imports, 1995

	Total Import	Total Agr.	Bulk	Proce- ssed Inter.	Hort- icul. Prod.	Consu- mer- ready
	Percent					
USA	12.20	25.05	39.89	13.11	9.40	17.59
Canada	2.03	11.76	24.15	2.10	0.50	3.74
EU15	17.75	12.38	15.98	9.79	0.87	11.30
AUS/NZL	2.22	3.99	2.59	5.45	1.30	4.40
Japan	21.96	2.56	0.54	1.17	1.09	17.26
CH3	17.80	2.03	0.98	2.41	2.61	4.63
ASEAN7	7.48	21.30	10.65	31.83	53.13	12.91
Korea	7.84	1.00	0.11	1.00	1.95	4.55
Russia	2.88	1.50	0.30	0.21	1.99	11.88
India	0.30	0.61	0.02	0.73	0.20	2.70
LNIC3	1.39	8.93	2.45	17.10	1.31	3.41
ROW	6.16	8.89	2.33	15.11	25.66	5.64
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Aggregated from *China's Customs Statistics*, General Administration of Customs of the PRC, December 1995.

Table 5--China's agricultural export share by destination, 1995

	Total Import	Total Agr.	Bulk	Proce- ssed Inter.	Hort- icul. Prod.	Consu- mer - ready
	Percent					
USA	16.61	5.09	1.69	5.33	2.58	6.96
Canada	1.03	0.60	0.30	0.11	0.89	0.78
EU15	13.33	9.87	8.87	14.41	9.26	8.80
AUS/NZL	1.25	0.48	0.56	0.32	0.42	0.54
Japan	19.13	32.20	12.45	9.72	38.78	44.42
CH3	26.80	25.51	22.04	47.37	21.78	20.22
ASEAN7	6.95	11.53	36.84	9.06	9.83	4.60
Korea	4.82	5.47	10.93	7.00	3.98	3.62
Russia	1.12	3.73	2.08	0.77	3.06	5.54
India	0.51	0.27	0.04	0.28	1.12	0.05
LNIC3	0.97	0.25	0.05	0.35	0.89	0.07
ROW	7.47	5.02	4.17	5.29	7.42	4.40
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Aggregated from *China's Customs Statistics*, General Administration of Customs of the PRC, December 1995.

NICs, however, were important players in the semi-processed goods market (17 percent), while Japan and Russia were important in the consumer-ready goods market (17 and 12 percent, respectively).

Market share data indicate that in bulk commodity markets, competition with the United States for market share comes mainly from Canada and the EU for wheat and corn, while ASEAN countries are China's major suppliers for rice. In the semi-processed goods market, ASEAN countries are major competitors with the United States. The toughest competition is in the consumer-ready processed goods market: the EU, Japan, Russia, and ASEAN countries all took a large share of the market and compete with U.S. products.

On the export side China shipped different commodity groups to different countries. Japan absorbed 44 percent of China's consumer-ready processed exports and 39 percent of its horticultural exports. Hong Kong, Macao, and Taiwan took 47 percent of China's semi-processed agricultural products. ASEAN7 took 37 percent of China's bulk exports while Hong Kong, Macau, and Taiwan absorbed 22 percent, Japan 12 percent, and Korea 11 percent.

Agricultural trade was unevenly distributed among different provinces within the country. In 1995, the largest agricultural trading province was Guangdong, which exported US\$2.7 billion (22 percent of the national total) and imported US\$2.3 billion (20 percent of the national total). Beijing, Shandong, and Fujian were three other provinces for which total agricultural trade exceeded 2 billion U.S. dollars. Traditionally large agricultural provinces in Northeast China suffered dramatic drops in exports in 1995 because of the reduction of grain and other bulk commodity sales.

Record U.S. Agricultural Exports to China in 1995

In 1995, U.S. agricultural exports to China more than doubled from the previous year, reaching a record US\$2.6 billion. Sharply increased sales of wheat, corn, vegetable oil, and other semi-processed farm products accounted for most of the U.S. agricultural export expansion to China. Table 6 presents bilateral agricultural trade flows between the United States and China. U.S. imports from China were segregated into competitive and non-competitive categories (4), while the data on U.S. exports to China are listed in both major commodity groups and also in the 4 broad categories used earlier. The data show that the value of U.S. grain exports to China increased most rapidly, rising nearly 7 times over 1994. The value of U.S. oilseeds and animal products tripled and doubled, respectively. Because of this rapid increase, the United States had an agricultural trade surplus with China in excess of US\$2 billion in 1995 (table 6 and appendix table 9).

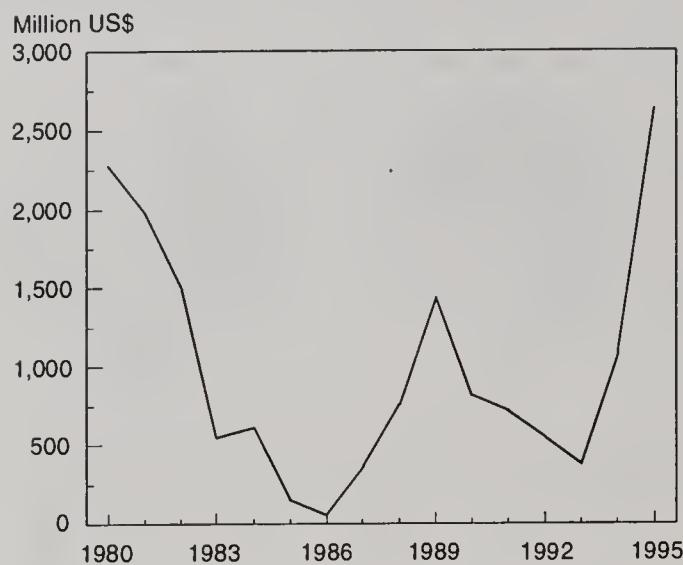
Figures 4-7 plot the time path of U.S. agricultural exports to China for the past 15 years. Figure 4 shows the value of U.S. total agricultural exports to China measured in current year prices. The other three charts depict major commodity shipments measured in tons. They show that U.S. agricultural exports to China fluctuated significantly over the period. When economic reforms began in the late 1970s, China's government decreased mandatory procurement of agricultural products and increased imports to reduce the burden on China's farmers and to promote rural development. From 1979 to 1981, China imported 40 million tons of grains. As the sales of grains, cotton, and oilseeds and products increased, U.S. agricultural exports to China reached its first peak of more than US\$2 billion in 1980. Trade declined from 1981 but picked up again after 1986 as China's grain production stagnated and as the U.S. Export Enhancement Program targeted China to counter the EC's subsidized wheat sales there.

Table 6--Agricultural trade between the United States and China, 1980-1995

	1980	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Million U.S. dollars											
Total ag. Imports	132.7	204.5	237.5	279.5	319.2	270.6	327.9	378.8	450.9	440.3	479.2
Noncompetitive	43.5	57.4	55.4	74.0	79.8	85.6	88.8	104.1	123.5	128.4	128.8
Competitive	89.2	147.1	182.0	205.5	239.4	185.0	239.1	274.6	327.4	311.9	350.5
Total ag. exports	2,277.3	58.1	362.1	759.0	1,435.0	814.0	722.2	544.6	376.4	1,080.4	2,632.8
Grains & feeds	1,313.6	4.5	234.2	699.5	1,142.7	513.2	365.0	273.7	279.6	173.4	1,148.4
Cotton, ex. linters	701.3	0.5	0.2	25.2	259.1	277.2	318.8	185.9	0.2	645.0	828.8
Oilseeds & products	231.9	25.5	86.0	0.6	7.1	1.2	2.8	39.0	26.2	141.4	409.6
Animals & products	29.4	24.0	19.5	23.8	17.1	17.2	27.2	31.6	48.7	96.6	204.1
Other ag. products	0.2	0.8	17.9	3.7	2.3	2.4	2.6	4.5	8.9	13.5	16.4
Bulk	1,964.4	28.3	244.7	730.5	1,369.9	776.9	683.9	491.4	309.1	829.6	1,389.2
Processed Inter.	312.4	28.8	115.3	27.0	60.2	32.4	26.4	36.0	34.5	211.2	1,187.1
Hortic. products	0.2	0.4	1.4	0.5	2.2	0.7	0.8	5.6	7.9	5.9	3.6
Consumer-ready	0.4	0.6	0.7	1.0	2.8	4.1	11.1	11.6	24.9	33.7	52.9
Balance	2,144.6	146.4	124.6	479.5	1,115.8	543.4	394.3	165.9	-74.4	640.1	2,153.6

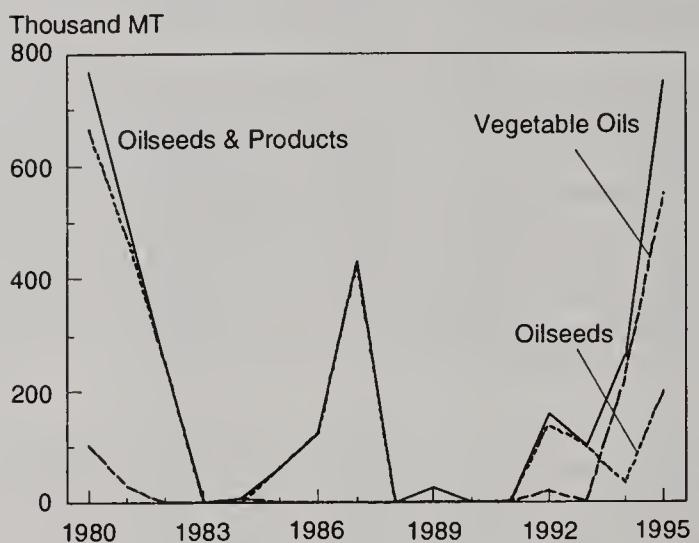
Source: USDA, *Foreign Agricultural Trade of the United States (FATUS)*.

Figure 4
U.S. Agricultural Exports to China, 1980-1995



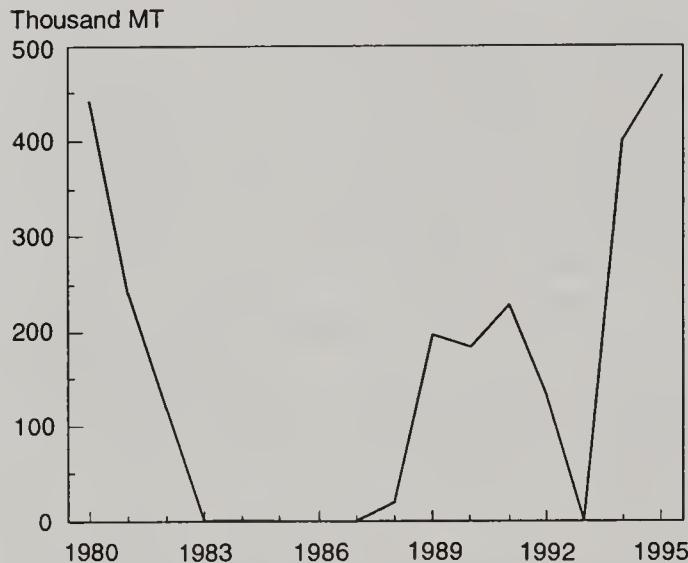
Source: USDA, Foreign Agricultural Trade of the United States.

Figure 7
U.S. Oilseed and Oilseed Product Exports, 1980-95



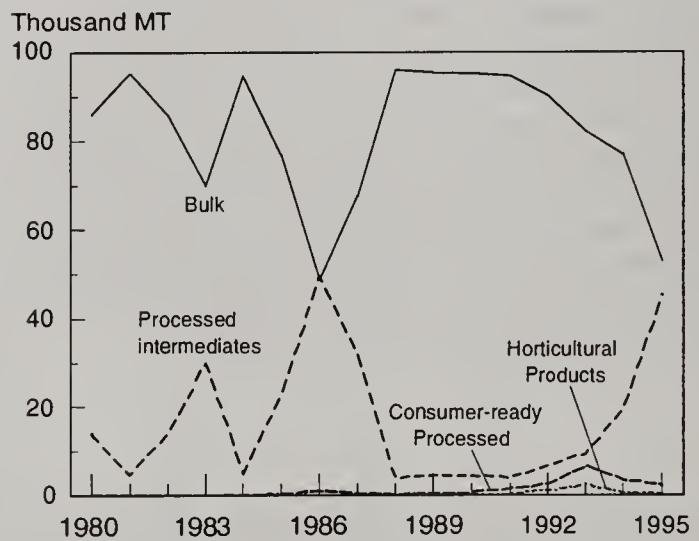
Source: USDA, Foreign Agricultural Trade of the United States.

Figure 5
U.S. Cotton Exports to China, 1980-95



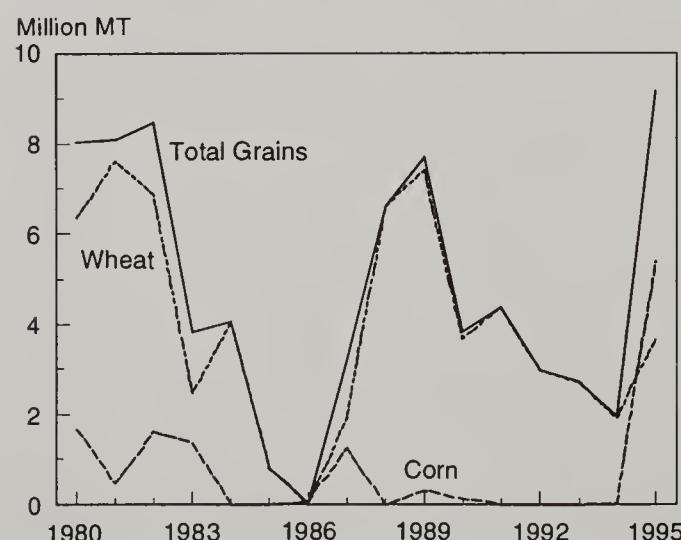
Source: USDA, Foreign Agricultural Trade of the United States.

Figure 8
Structure of U.S. Agricultural Exports to China, 1980-1995



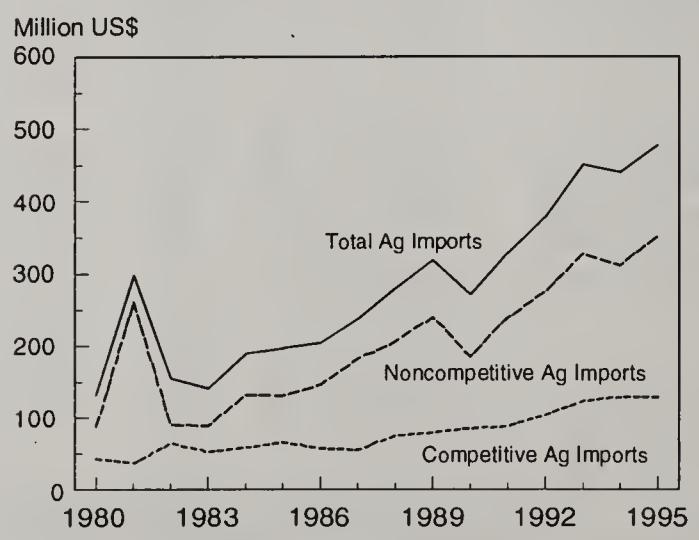
Source: USDA, Foreign Agricultural Trade of the United States.

Figure 6
U.S. Exports of Grain and Feed to China, 1980-95



Source: USDA, Foreign Agricultural Trade of the United States.

Figure 9
U.S. Agricultural Imports From China, 1980-1995



Source: USDA, Foreign Agricultural Trade of the United States.

In the late 1980s, U.S. agricultural exports to China expanded again and reached a second peak in 1989 mainly because of increased wheat sales. During the early 1990's, U.S. agricultural exports to China dropped again because of successive good harvests and policy changes in China. From 1994, U.S. agricultural exports to China rebounded again and reached a record in 1995.

One cause for the surge in imports was the poor grain harvest in 1994, but if one carefully examines the structure of imports, it is obvious that China seems to have purchased more corn than wheat and more vegetable oil than oilseeds compared with the previous two agricultural import peaks (Figure 5,6, and 7). This indicates that there were more profound economic factors underlying the recent agricultural import surge, such as rising incomes prompting consumers to purchase more meat and processed foods. These trends are not like the temporary recovery and pure policy phenomena which occurred in the 1980's.

Rather they are likely a reflection of trends caused by recent rapid economic growth and industrialization in a land-scarce economy, which is becoming more decentralized and market-oriented. These trends look promising for U.S. agricultural exports to China in the coming years, especially for land intensive bulk commodities and semi-processed intermediates. There may be fluctuations in trade in 1996 and 1997 because of policy changes and weather conditions, but the economic forces underlying this structural shift are expected to be reinforced during the course of China's economic reform and will override other changes over the long term.

Figure 8 depicts changes in the structure of U.S. agricultural exports to China from 1980 to 1995. It shows that although U.S. exports of consumer-ready processed goods to China increased steadily at more than 35 percent a year in recent decades, these goods still accounted for less than 10 percent of U.S. farm products sold in China. Bulk and semi-processed commodities constituted the major portion of U.S. agricultural exports. The proportion of bulk commodities has been declining and the portion of semi-processed products has been steadily raising since 1989.

Figure 9 describes the trend of U.S. agricultural imports from China. Noncompetitive imports, mainly specialty items, such as tea, silk, Chinese herbs, and some prepared and preserved fruits, grew steadily over the last decade at a moderate rate of 5.5 percent annually. These types of imports are expected to continue expanding in the coming years because demand for such specialty commodities is growing. The competitive imports from China grew at a higher rate, despite of its significant fluctuation over the same period.

Total Trade with Neighboring Regions Expands (5)

China has a very long border with 15 Asian countries. Trade with these neighbors expanded dramatically from US\$104 billion in 1992 to US\$149 billion in 1995. Trade with Asian economies accounted for 52 percent of China's total imports and 54 percent of its total exports (table 7). Japan was the

Table 7--China's total trade with neighboring countries, 1995

	Imports	Share	Exports	Share
	Million US\$	Percent	Million US\$	Percent
Northeast	43,160.3	32.7	37,302.8	25.1
Japan	29,004.8	22.0	28,462.7	19.1
DPR. Korea	63.6	0.0	486.2	0.3
Rep. Korea	10,293.3	7.8	6,689.2	4.5
Russia	3,798.6	2.9	1,664.7	1.1
Northwest	786.9	0.6	1,077.3	0.7
Pakistan	222.9	0.2	788.6	0.5
Kazakhstan	315.5	0.2	75.4	0.1
Mongolia	99.0	0.1	62.9	0.0
Kirghizia	123.5	0.1	107.5	0.1
Afghanistan	16.6	0.0	31.6	0.0
Tajikistan	9.2	0.0	11.3	0.0
Southwest	397.8	0.3	818.9	0.6
India	397.5	0.3	765.3	0.5
Nepal	0.2	0.0	53.4	0.0
Bhutan	0.0	0.0	0.2	0.0
Southeast	23,991.7	18.2	41,261.1	27.7
Hong Kong	8,591.1	6.5	35,983.8	24.2
Taiwan	14,783.9	11.2	3,098.1	2.1
Macau	128.6	0.1	793.4	0.5
Burma	149.6	0.1	617.8	0.4
Vietnam	332.1	0.3	720.1	0.5
Laos	6.4	0.0	47.8	0.0
Total	68,336.6	51.7	80,460.0	54.1

Source: Aggregated from *China's Customs Statistics*, General Administration of Customs of the PRC, December 1995.

largest supplier of China's imports and the second largest market for China's exports after Hong Kong.

China's Agricultural Trade with the Region

Tables 8 and 9 depict market shares — each neighbor's share of China's agricultural imports and each neighbor's share of China's exports by major commodity groups. The data clearly show that neighboring economies took 70 percent of China's agricultural exports, but only supplied 10 percent of China's agricultural imports. However, those neighbors supplied China with one fourth of its horticultural imports and more than 40 percent of consumer-ready imports. The reason for these trade patterns is quite obvious since most of China's neighboring countries are land scarce like China. Considering trade dependence, China depended on its northeastern and southeastern neighbors for most of its local agricultural imports and exports. The economies along its northwest and southwest borders played minor roles as trade partners of agricultural commodities until the present.

China's agricultural trade with neighbors to the northeast accounted for 41 percent of its total farm exports and 5 percent of its world agricultural imports. In 1995, China shipped US\$5.7 billion in agricultural products to these economies, a 40- percent increase from 1992, while agricultural imports from these neighbors doubled from its 1992 level, totaling \$483 million. This region absorbed almost a half of China's horticultural and consumer-ready sales and a quarter of bulk exports.

Table 8--Agricultural import share in China by neighboring countries, 1995

	Total Ag.	Share in World	Bulk Inter.	Pro-cessed Inter.	Hort-icul. Prod.	Consu-mer-ready
Million US\$						
Northeast	483.1	5.1	0.9	2.4	5.0	33.7
Japan	244.2	2.6	0.5	1.2	1.1	17.3
DPR. Korea	14.5	0.2	0.0	0.0	0.7	1.2
Rep. Korea	81.4	0.9	0.1	1.0	1.2	3.4
Russia	143.0	1.5	0.3	0.2	2.0	11.9
Northwest	34.5	0.4	0.0	0.3	7.4	0.3
Pakistan	16.1	0.2	0.0	0.3	0.3	0.3
Kazakhstan	18.5	0.2	0.0	0.0	7.1	0.0
Southwest	58.2	0.6	0.0	0.7	0.2	2.7
India	58.2	0.6	0.0	0.7	0.2	2.7
Southeast	399.2	4.2	3.6	3.8	13.0	6.0
Hong Kong	123.4	1.3	0.7	1.4	0.9	3.5
Taiwan	70.1	0.7	0.3	1.1	1.7	1.1
Macau	0.3	0.0	0.0	0.0	0.0	0.0
Burma	20.4	0.2	0.1	0.0	3.3	0.8
Vietnam	185.0	1.9	2.5	1.4	7.1	0.6
Total	975.1	10.2	4.6	7.2	25.7	42.7

Source: Aggregated from *China's Customs Statistics*, General Administration of Customs of the PRC, December 1995.

China's agricultural trade with its northwestern and southwestern neighbors continues to grow. In 1995, farm trade with economies in the northwest summed to US\$77 million, a little more than 4 percent of China's total trade with the region. While two-way agricultural trade with southwestern neighbors reached nearly US\$100 million in 1995, this trade accounted for only 10 percent of China's total trade with the region.

In 1995, China's trade with its southeast neighboring countries summed to US\$65 billion, at the 1992 level. But agricultural trade expanded rapidly. Exports increased by more than 50 percent from 1992, reaching US\$3.7 billion, and accounting for 27 percent of China's total agricultural exports. Imports increased by 20 percent and summed to US\$400 million. This region bought nearly half of China's semi-processed product sales but also played an important role in China's horticultural commodity import market (13 percent of total imports).

Notes:

1. China Customs Statistics, *International Business*, February 12, 1996, Ministry of Foreign Trade and Economic Cooperation, People's Republic of China.
2. The numbers are aggregates in HS Chapter from 1 to 24, which does not include raw hides and skins, which is part of HS Chapter 41, furskins, which is part of HS Chapter 43, and cotton, which is part of HS Chapter 52,

Table 9--China's agricultural export share in neighboring countries, 1995

	Total Ag.	Share in World	Bulk Inter.	Pro-cessed Inter.	Hort-icul. Prod.	Consu-mer-ready
Million US\$						
Northeast	5,674.9	41.4	25.5	17.5	45.8	53.6
Japan	4,414.5	32.2	12.5	9.7	38.8	44.4
DPR. Korea	75.0	0.5	0.9	1.5	0.2	0.2
Rep. Korea	674.3	4.9	10.0	5.5	3.8	3.4
Russia	511.0	3.7	2.1	0.8	3.1	5.5
Northwest	42.0	0.3	0.0	0.3	0.5	0.3
Pakistan	23.8	0.2	0.0	0.0	0.5	0.2
Kazakhstan	18.3	0.1	0.0	0.3	0.0	0.1
Southwest	36.6	0.3	0.0	0.3	1.1	0.1
India	36.6	0.3	0.0	0.3	1.1	0.1
Southeast	3,713.5	27.1	28.2	48.7	22.3	20.7
Hong Kong	3,045.9	22.2	18.2	41.3	19.4	17.8
Taiwan	290.4	2.1	3.2	4.5	1.7	1.1
Macau	160.7	1.2	0.7	1.6	0.7	1.3
Burma	84.9	0.6	3.0	0.0	0.1	0.2
Vietnam	131.6	1.0	3.2	1.3	0.5	0.2
Total	9,466.9	69.1	53.8	66.8	69.8	74.6

Source: Aggregated from *China's Customs Statistics*, General Administration of Customs of the PRC, December 1995.

because detailed HS trade data for 1995 from China's Customs Statistics are not available yet.

3. Bulk commodities are unpackaged products that are inexpensive to ship, it includes grains, oilseeds, plant-based fibers such as cotton, raw rubber and unmanufactured tobacco. Land use accounts for a significant share of the production costs for bulk production, especially compared with the other commodity groups. Processed intermediates are goods derived from bulk commodities and need further processing for human consumption. It includes flour, feed, live animals, animal fats and oils, as well as animal-based fibers such as wool. Horticultural products are consumer-ready, unprocessed fresh commodities such as fresh fruit, vegetables, and flowers. They often require special handling such as containerization and refrigeration. Consumer-ready processed products are commodities that have been significantly transformed with high value-added such as preserved vegetables, fruits and nuts, fresh and frozen meats, eggs, dairy products, processed meat, and beverages.
4. The noncompetitive imports are those products which the United States usually does not produce and export (or only produces and exports in a very small amount), such as bananas, coffee, cocoa and products, tea, spices, natural herbs, raw silk, natural rubber, and essential oils, etc.
5. All data used in this section are based on China's Customs Statistics, Economic Information Agency, December 1995.

China's Agricultural Policy Developments in 1995

In 1995, authorities debated the benefits and costs of their self-sufficiency strategy. While the central policy direction is not certain, there are signs that China is beginning to abandon its long held self-sufficiency policy in favor of a limited self-sufficiency strategy. This article also discusses the new "grain bag" and "vegetable basket" policies to support urban food consumption priorities. [Frederick W. Crook (202) 219-0002]

Policy Discussions About Self-Sufficiency

For decades China's leaders and scholars have debated the benefits and costs of self-sufficiency and comparative advantage with regard to agricultural products. There has also been much discussion of the sustainability of agricultural production growth in China, with some scholars raising warnings for many years about land degradation, the shortage of irrigation water in the North China Plain, the trend of decreasing government investment in agricultural research, and other issues. China's recent history of switching from large exports to large imports of grain has prompted considerable analysis of what role China ultimately will play in the global food balance.

These discussions were renewed with great interest in 1994 and 1995 because of recent predictions that China's grain imports could be very large in several decades, and because of China's major lurch from large grain exports to large imports in 1995. One manifestation of this recent concern was the initiation of the "Grain Bag Policy" which gave provincial governors responsibility for maintaining adequate grain supplies.

In China's policy debate on grain, one group of scholars and leaders argued that China should rely on its own resources for food supplies. The government should invest additional funds to support growth in agricultural production.

A second group of scholars and officials argued that it is very costly for China to follow a self-sufficiency policy. They noted that China has limited arable land, a relatively poor transportation infrastructure, relatively abundant natural resources, and a large labor force. This endowment gives China certain comparative advantages in producing manufactured goods for the world market. They argued that China should use the principle of comparative advantage—produce those goods where there is a comparative advantage and import grains and oilseeds.

A third—and strongest—group in this policy debate seems to have settled on "limited self-sufficiency." They argued that China should specialize in producing labor intensive crops such as fruits, vegetables, and specialty crops and should use natural endowment to produce and export industrial products. It makes good economic sense to import a limited quantity of land intensive crops such as grains and oilseeds.

China's leaders now talk in terms of "limited self-sufficiency"—importing from 5 to 12 percent of annual grain consumption requirements. Whereas a few years ago leaders, would scoff

at projections that China would import 20 million tons of grain by the year 2000, now they believe China could well import 40 million tons by 2000 or 2005.

As China moves to this new policy orientation, authorities naturally will be concerned about sources of grain supplies. Can it depend on world grain markets for supplies of wheat, corn, and rice? In the summer of 1995, some leaders felt that China could get sufficient supplies of wheat and corn from international grain markets. But leaders were concerned about purchasing rice supplies on the international market. A corollary to this possible policy shift is that China is very concerned about the resiliency of international grain markets and the reliability of suppliers (will food exports be used against China as a tool to meet a given country's foreign policy objectives, i.e., grain embargoes?). Similarly, grain suppliers are interested in whether China will be a reliable buyer of grains.

"Grain Bag" Policy

In early 1995, the central government initiated a new grain policy in which provincial governors were given responsibility to maintain the "grain bag." With this policy governors are to: a) stabilize area sown to grain crops; b) guarantee investment in agricultural inputs like chemical fertilizer to stimulate grain production; c) guarantee that certain quantities of grain are put into stocks; d) ensure that transfers of grain in and out of a province are completed; e) stabilize urban resident concerns by supplying grains and edible oils; and f) stabilize grain and edible oil prices. If a local disaster strikes, the local resources should be used first. If the local government cannot handle the situation, then the State Administration for Grain Reserves will provide assistance. The central government took this course to reduce its financial exposure. The financial responsibility for managing grain and edible oil has been transferred from the central government to provincial levels.

To achieve these objectives, governors will use their provincial Grain Bureaus which will perform both policy and commercial operations. Policy operations consist of purchasing grains (oilseeds) at fixed quota prices (below market prices), transporting, storing, milling, transferring, and retailing grain. Losses incurred by the policy divisions in the Grain Bureau while performing these operations will be subsidized by the central government. For 1995, the central government planned to purchase 50 million tons of grain via this operation. With regard to the old grain and edible oil rationing system (1953 to 1993), urban families were issued grain books which entitled them to purchase fixed quantities of grain and edible

oils at low fixed prices in government operated grain stores. Grain coupons were issued as a means of implementing this distribution system. In 1993, the coupon system ended.

By 1995, various provinces used different systems such as grain books, grain coupons, or controlled markets to help low income families obtain low priced grains in the government owned grain stores. In making these purchases, low income families do not have a lot of choice—they buy whatever product is on the shelf. Usually the grain there tends to be older and of lower quality. Higher income urban residents purchase their grain in open markets and this grain tends to be fresher and of higher quality.

If a governor finds that his province does not have enough grain to meet current demand, then he can contact his counterparts in grain surplus provinces to arrange a mutually beneficial sale. The central government only gets involved if a province cannot complete a deal, i.e., cannot find the supply. Presumably, the central government has three options: lean on a grain surplus province to sell their grain; take grain out of stocks; or import grain.

Grain Bureaus are to separate policy operations noted above from their commercial operations. Once a local state quota purchase has been met, grain markets can function. Commercial firms of the Grain Bureau are the only entities authorized to purchase grain from farmers and participate in local village and township grain markets. They also can participate in county, provincial, national wholesale markets, cash, and futures markets.

This new policy has made it more difficult to generalize about China's grain economy. Whereas before, there was one policy for the whole country. Now, individual provinces can have different policies, such as they can add subsidies to grain purchase price. For example, in 1995 the fixed quota price for corn in Manchuria was 660 RMB/ton, 820 RMB in the

North China Plains area, and 920 RMB in South China. Also, provinces can use different methods to handle grain supplies for urban poor. As an example, in 1995 the author visited three provinces and found three different systems to disburse grain to urban poor people. One simply allowed open markets to function, the second used grain coupons, and the third used grain books.

"Market Basket" Policy

The "market basket or vegetable basket" program was initiated in 1988 to boost supplies of vegetables, aquatic products, fruits, and livestock products for urban residents. The program was promoted on a nationwide basis in 1989. The program includes investments to increase production and develop processing, packaging, storage, and marketing facilities to more efficiently move products from growing areas to urban retail markets. Funds have been used to build water control systems (irrigation and drainage) so that vegetables can be grown even during times of moderate floods or droughts. Electrical lines, roads, and wholesale marketing facilities have been built to support the project.

Provincial governments use funds to subsidize producers and consumers by issuing regulations governing the use of prime suburban vegetable land; setting ceiling prices for vegetable and meat products; providing support for vegetable production through science and technology; and arranging for shipment of vegetables out of and into the province. Government tax bureaus have exempted vegetable production from the value added tax (VAT).

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Government To Boost Inputs for 1996

During the Ninth 5-Year-Plan, government planners intend to boost supplies of chemical fertilizers. The government also plans to maintain control of the manufactured input supply system. Government investment in the agricultural sector picked up in 1994 and 1995, but overall investment in the sector does not match planned growth for the agricultural sector. Situation and outlook information for China's rural economy took a giant step forward when the Ministry of Agriculture published its Report on China's Agricultural Development '95. [Frederick W. Crook (202)219-0002]

Government Continues To Control Supply of Key Manufactured Inputs

Government authorities continue to control the supply and prices for key manufactured agricultural inputs such as chemical fertilizers, pesticides, and plastic sheeting. In 1993 and 1994, there was some debate about the costs and benefits of allowing open markets to supply manufactured inputs. In 1994, the State Council (China's highest executive authority) issued special regulations governing the production, distribution, and price of chemical fertilizers. Chemical fertilizer manufacturers are required to sell 90 percent of their output to agricultural material supply companies at standard prices (average price of US\$138.50 per ton in 1996). The supply companies add transportation and management markups so that the free market price for urea ranges from US\$253 to US\$301 per ton.

The government controlled, All-China Federation of Supply and Marketing Cooperatives, manages the distribution of manufactured inputs. It does this by managing local supply and marketing cooperatives' functions with regard to manufactured inputs. But since local supply and marketing cooperatives are based on local producers and consumers, it is not clear how the government actually manages the supply of inputs.

Fertilizer Production and Use Up for 1996

The production target for 1996 is 118 million tons, up 4 million from 1995. In 1995, China claimed to be the world's number two chemical fertilizer producer, with 24.5 million tons (at nutrient weight basis, 114 million tons at product weight basis), up 6.3 percent from the 23 million tons produced in 1994 (table 10). Also in 1995, China became the world's largest chemical fertilizer importer with nearly 20 million tons (product weight basis). Chemical fertilizer application rose from 33.1 million tons (nutrient weight) in 1994 to 35.7 million tons in 1995, a 7.8-percent increase.

Urea prices rose from 1,400 RMB/ton in 1994 to 2,300 RMB/ton by the end of 1995. In spring 1996, chemical fertilizer prices were reported to be 23 percent higher than in spring 1995.

Fertilizer prices rose in 1995 for three reasons. First, in 1994 and 1995, prices for raw materials such as petroleum, natural gas, and coal used in the manufacture of chemical fertilizers rose. Also, transportation costs and the price of electricity

Table 10--China's major manufactured farm inputs, 1993-95

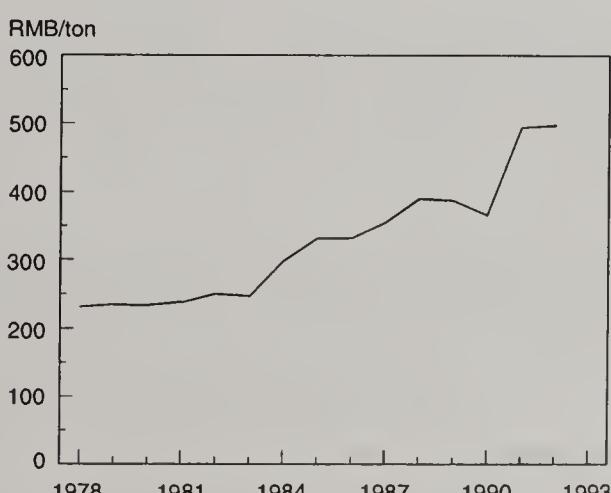
Item	Units	1993	1994	1995
Yearend stocks:				
Lrg-med tractors ¹	1,000	720	690	670
Small tractors	1,000	7,840	8,210	na
Rural trucks	1,000	680	760	800
Machinery production:				
Lrg-med tractors ²	1,000	37	46	63
Small tractors	1,000	961	1,355	1,925
Rural electricity consumption ³				
	Mil. Kwh	121,940	147,370	165,550
Fertilizer output ⁴	1,000 tons	20,160	23,027	24,500
Nitrogen ⁴	1,000 tons	15,467	17,264	19,158
Phosphate ⁴	1,000 tons	4,514	5,370	6,334
Potassium ⁵	1,000 tons	-179	-393	-380
Fertilizer applied	1,000 tons	31,501	33,179	35,922
Cultivated land ⁶	1,000 ha.	95,101	94,910	na
Irrigated land	1,000 ha.	48,646	48,792	49,119
Pesticides	1,000 tons	249	268	360
Plastic sheeting ⁷	1,000 tons	380	375	600

¹ Large or medium sized tractors with a capacity of 14.7 Kw or more.

² Wheeled and crawling tractors of 14.7 Kw capacity or more. ³ Not all for agricultural production. ⁴ Effective nutrient weight. ⁵ Numbers in parenthesis derived. ⁶ China Statistical Yearbook. Cultivated land is under reported, so actual arable land is higher than reported here (1993 report, pp. 33-39). ⁷ USDA estimate.

Source: 1995 China Statistical Yearbook; 1996 Statistics Abstract; Rural Statistical Yearbook, 1994; China's Customs Statistics, 1995; and various press reports.

Figure 10
Real Chemical Fertilizer Prices, 1978-92



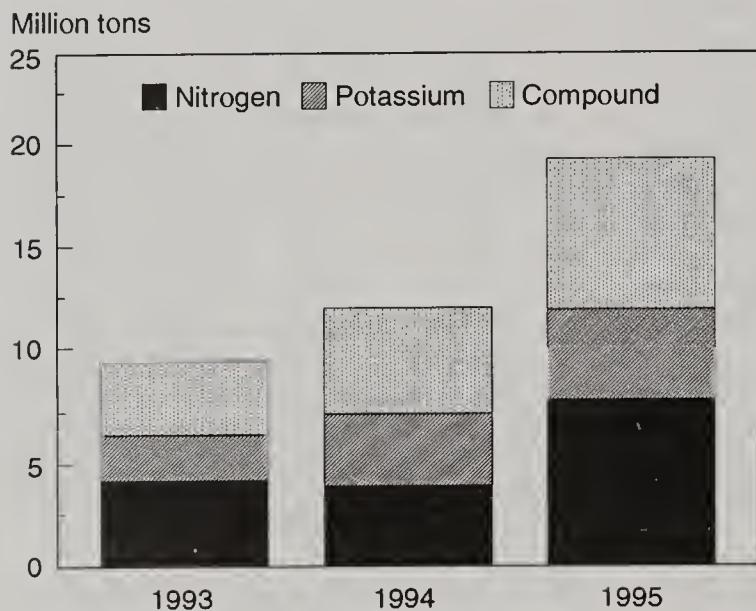
Source: Mixed retail price, on a nutrient weight basis, Ministry of Agriculture, China's Ag Development '95, table 22, p 194.

Peasants Irate Over High Fertilizer Prices

In the past few years, we have collected many anecdotes regarding farmer's views of rising input costs. Here we have selected one report featured in an article by Fu Xingyu, "Raise Grain Prices and Lower Fertilizer Prices Is the Wish of Fertilizer Buyers," Beijing, *Jingji Cankao*, March 26, 1996.

A farmer in Heilongjiang province declared that the government gets "you coming and going." Farmers have to respond to the government's call to fulfill grain purchase quotas—and the government controls the fixed quota purchase price. " Meanwhile, chemical fertilizer is necessary to grow grain, so no matter how high the price they quote, you have to pay it. From the income they make from selling grain, the peasants contribute

Figure 11
China's Chemical Fertilizer Imports, 1993-95



Source: China's Customs General Administration, China's Custom Statistical Yearbook, 1993, 1994, and, 1995.

increased. Second, the increase in grain prices encouraged farmers to raise grain so that farmers in spring 1995 were anxious to purchase extra quantities of chemical fertilizers such that demand exceeded supply. Third, chemical fertilizer prices on the international market rose. These price increases are a continuation of a trend going back to the early 1980s (figure 10).

In 1995, fertilizer imports surged to a record 19.9 million tons, up 62 percent from 1994 (figure 11). The average price China spent for fertilizer imports rose from US\$142 per ton in 1993 to US\$153 in 1994 and increased to US\$188 per ton in 1995. In 1995, the government allocated US\$3.7 billion to import chemical fertilizers compared with US\$3.6 billion for imported grain.

The composition of imported chemical fertilizer has not changed much in the last few years. In 1995, nitrogen fertil-

izers accounted for about 40 percent of total. Very little strictly phosphate fertilizer was imported while potassium fertilizers accounted for 22 percent of total. Compound fertilizers (those with two or more elements) accounted for the remaining 38 percent. The compound fertilizer, diammonium phosphate, imports accounted for 27 percent of total fertilizer imports.

During the Eighth Five Year Plan (1991-95), 16 billion RMB were invested to expand large chemical fertilizer plants and as a result output jumped from 19.8 million tons in 1991 to 24.5 million in 1995, an increase of 23.7 percent. Four large urea plants with an annual production capacity of over 500,000 tons were built in interior provinces such as Henan. Nitrogen output rose 10.3 percent from 17.4 million tons (nutrient weight) to 19.2 million tons in 1995. Four compound fertilizer plants were built near phosphate deposits in Jiangxi and Yunnan provinces. Phosphate production increased 26 percent from 5 million tons in 1994 to 6.3 million tons in 1995. Potassium fertilizer output expanded from 321,000 tons in 1994 to 380,000 tons in 1995. Potash production facilities were expanded in Qinghai province.

Government planners have identified chemical fertilizers as a key factor in boosting crop yields in the Ninth Five Year Plan. The text of the Ninth FYP called for the development of farm related industries. Specifically, the plan called for authorities to renovate old chemical fertilizer plants and construct new ones. Production capacity of factories manufacturing plastic sheeting, pesticides, and farm machinery should be expanded. The output target for the year 2000 is 28.4 million tons (nutrient weight basis), a 16-percent increase over 1995.

During the Ninth FYP the government plans to expand nitrogen fertilizer production in energy rich Hainan (natural gas), Xinjiang (natural gas and petroleum), and Shanxi province (high quality anthracite). China's goal is to be nitrogen fertilizer self-sufficient by 2000. Also, authorities plan to expand phosphate fertilizer production in Guizhou and Yunnan provinces.

The government has decided to allocate 4.3 billion RMB during the Ninth FYP to expand the potash works in Qinghai province. The target is to expand facilities to produce 1 million tons of potash fertilizer per year.

Currently, China is the world's largest producer and user of plastic sheeting. Annual output is currently above 600,000 tons. News reports indicate current inventories are sufficient to cover demand for spring sowing for 1996.

Investment in China's Agricultural Sector

Domestic Investment

Investment in agriculture is expected to come from government budget expenditures, bank loans, rural collectives, township and village enterprises, foreign capital, and farm families. During the Ninth FYP rural authorities plan to mobilize the rural labor force to build capital projects. Rural workers will construct water conservation projects, repair and build roads, plant trees and forests, and reclaim waste land.

In 1995, the state invested \$3.2 billion in crops, forestry, livestock, fishery, and water conservancy sub-sectors, an increase of 43.7 percent. Indeed, the percentage of investment from state owned units in agriculture as a percentage of total investment in fixed assets rose from 1.6 percent in 1994 to 1.9 percent in 1995 (figure 12).

Foreign Investment

According to the Ministry of Agriculture, China has used nearly \$9 billion of foreign investment from 1978 to 1994 to promote development in about 4,000 different agricultural projects.

Minister Liu Jiang recently noted that China is looking to import specific kinds of technology. His shopping list includes: improved seed varieties, methods to control plant diseases and insect pests, and technology to reduce losses from farm gate to consumer. China especially needs packaging, food processing, food transportation, and storage equipment.

"Project Seed"

During the Ninth FYP, the government plans to implement a comprehensive seed development program by strengthening its genetic research programs. The plan calls for developments in seed production, processing, sales, and promotion of high yielding wheat, rice, corn, and cottonseed.

Agricultural Situation and Outlook Work in China

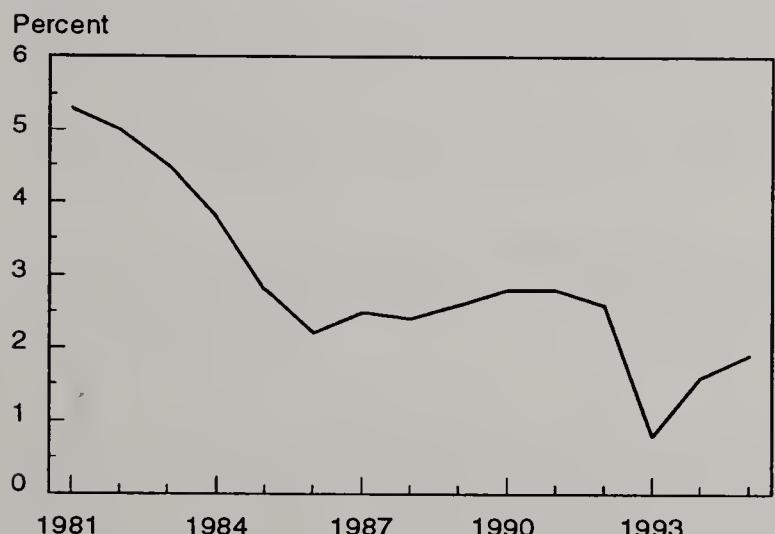
In addition to physical inputs, China has taken steps to expand information sharing regarding input prices and markets.

Market Information Becoming More Available

An increasing portion of China's agricultural products are moving from farm to end users via open markets. For these

Figure 12

State Investment in Fixed Assets in the Agricultural Sector, 1981-1995



Source: Beijing Review, No. 51, December 18-24, 1995, pp.11-16.
Investment by state-owned units in agriculture as a percentage of total investment in fixed assets.

markets to function effectively participants in the markets need price information. There is growing evidence that price information is becoming more available to all users. First, many daily newspapers in China now carry prices of major agricultural products. Second, periodically newspapers publish urban retail prices. Third, some open markets, such as the very large Dazhongsi vegetable market in Beijing, now offers price and quantity information via on-line computers, telephone banks, and published newsletters.

China's Ministry of Agriculture Publishes Important Report

In 1995, China published its first situation and outlook report on its agricultural economy entitled, *Report on China's Agricultural Development '95*. This 200 page report was prepared by the Ministry of Agriculture and summarizes developments in China's agricultural economy in 1994 and makes some preliminary forecasts for 1995. This first report provides valuable information about China's rural economy to interested parties in China and in the international community. We commend the efforts of the authors and the Ministry of Agriculture in publishing this first report and hope that they will continue to expand their efforts in the future. The report has 4 sections: "Summary" "Sectors" "Special Subjects" and "Information—Statistical Data" (see box).

The "Summary" gives a broad overview of agricultural development from 1979 to 1994 and describes connections between the general economy and the rural economy. It also analyzes developments in the rural economy such as per capita income, rural consumption patterns, rural savings and investment, marketing, prices, and input supplies. For each topic, developments since 1979 are summarized, developments in 1994 are described, and a short forecast is made for development for 1995.

The "Sectors" section of the report highlights developments in crop, livestock, aquatic products, township and village enterprises, state farms, agricultural mechanization, and the feed industry sectors. Analysts in the Ministry of Agriculture followed a standard format in preparing material for each sector. First, they summarized major developments from 1979 to 1993; next, they described developments in 1994; and finally they outlined basic trends for 1995.

The "Special Subjects" section of the report contains five articles on important current topics. The titles of the five articles are as follows: "Establish a System for the Orderly Transfer of Agricultural Land;" "Reasons for the Rise in Agricultural Product Prices and Ideas for Controlling and Adjusting Prices;" "Lead Rural Laborers To Migrate in an Orderly Way;" "Industrialization of Agricultural Production (intermediate processing, post harvest value added) and Its Development Path;" and "Strategy and Potential To Increase Grain Production to 500 Million Tons (by the year 2000)."

Transport Capacity Boosted in 1995

During the Eighth FYP, China added 112,000 kilometers of new highway and now has over 2,000 kilometers of superhighways. Workers constructed 283 berths, of which 100 were

The "Information—Statistical Data" section contains 29 appendix tables. The titles of the 29 tables are listed as follows:

- o The Position of Rural Economy in the National Economy
- o The Labor Force in Rural Areas
- o Rural Gross Domestic Product and Its Composition
- o Conditions for Agricultural Inputs
- o State Financial Expenditures on Agriculture and Financial Price Indices
- o Cultivated Area
- o Sown Area for Various Crops
- o Area Affected by Natural Disasters and Salinization
- o Rural Household Per Capita Fixed Asset Values
- o Basic Economic Conditions for Rural Households
- o Output of Major Crops
- o Animal and Aquatic Product Output
- o Basic Conditions of Township and Village Enterprises
- o Major Financial and Economic Efficiency Indices of Township and Village Enterprises
- o Supply and Use Tables Including Price Data for Rice, Wheat, Corn, and Soybeans
- o Production and Import-Export of Grain and Edible Oils
- o Production and Import-Export of Cotton and Sugar
- o Production, Consumption, Import, and Export of Pork
- o Production, Import, and Prices of Chemical Fertilizers and Pesticides
- o Composition of Average Per Capita Income in Urban and Rural Areas
- o Urban and Rural Per Capita Spending Compared
- o Urban and Rural Per Capita Food Consumption Patterns Compared
- o Various Price Indices
- o Purchase Price Indices for Various Farm Commodities, 1978-93
- o Retail Price Indices for Urban and Rural Areas
- o Regional Rural Labor Migration for 1994.

deep water berths, and cargo handling capacity increased by 120 million tons. The number of civilian transport vehicles increased from 14.8 million in 1991 to over 30 million at the end of 1995 (table 11).

In the Ninth FYP, authorities plan to expand China's transportation system. For 1996, the Ministry of Communications plans to build 15,000 kilometers of new roads and add 600 kilometers of superhighways. Efforts will be made to use superhighways to link Shanghai to Hangzhou, Nanjing, and Ningbo. Plans have been laid to construct 29 new berths, 9 of which are to be deep water berths. Port cargo handling capacity is scheduled to go up by 5.5 million tons.

Railway transportation capacity will be expanded. Efforts also will be made to expand highway, waterway, air, and pipeline capacity. Authorities want to develop integrated transportation systems which will boost China's ability to move goods east to west and north to south. For example, by the year 2000, Jiangsu province plans to construct 60 new berths along the Yangzi (and other rivers) of which 42 will be for 10,000 ton ships and 11 berths will be for containers.

Table 11--China's transportation situation, 1993-95

Item	Units	1993	1994	1995
Rail lines,	1,000 Km	53.8	54.0	5.46
Highways,	1,000 Km	1,084	1,118	1,157
Cargo handled at major seaports	mmt	678	744	790
Cargo handled in billion ton-kilometers (Btk)				
Rail	Btk	1,195	1,246	1,287
Road	Btk	407	449	489
Water	Btk	1,386	1,569	1,700

Sources: SSB, *China Statistical Yearbook*, 1995. SSB, *China Statistical Abstract*, 1996.

Good Grain Crop Projected for 1996

China's officials are pushing farmers to increase area sown to grain crops for 1996. With increased use of inputs and normal weather conditions, farmers likely will reap a good grain crop for 1996. In 1994, China had net grain exports of 2 million tons, but the situation changed dramatically in 1995 so that China had record net imports of 19.69 million tons. [Frederick W. Crook (202) 219-0002]

China's officials project that grain production for 1996 will exceed the 1995, 467 million ton crop. Because of continued strong consumption growth, however, China likely will be a net grain importer in 1996 with wheat, corn, and rice imports exceeding grain exports.

Area sown to grain for 1996 is projected to rise by about 1.1 million hectares (ha), up 1.1 percent to 111.1 million, primarily because of government and party administrative programs. USDA projects a total grain crop of around 470 million tons for 1996.

In 1993 and early 1994, government authorities emphasized grain reform policies to strengthen markets. But, rising grain prices, shifts in demand, a dip in production in 1994, and reduced stocks, led leaders in 1995 and 1996 to re-emphasize the government's role in monitoring grain production, consumption, and trade (see policy section). Production of wheat, rice, corn, sorghum, millet, barley, oats, soybeans, potatoes, and pulses (China's definition of grain) totaled 467 million tons in 1995, according to the State Statistical Bureau (SSB). Output was up 4.8 percent from the 1994 crop of 445.1 million tons as yields increased by 4.5 percent and grain area increased by 0.3 percent (appendix table 1 and 2). In 1995, grain exports totaled 820,000 tons compared with 18.2 million in imports.

The SSB's *Statistical Yearbook, 1995* provides the most up-to-date grain consumption data. Real urban living expenditures increased from 446 RMB in 1981 to 2,281 RMB in 1994. In the same period, data from the SSB urban household income and expenditure surveys show that urban per capita grain consumption decreased from 145 kilos in 1981 to 102 kilos in 1994. Urban households used a decreasing portion of their available living expenditures (income) to purchase grains. The budget spent for food grain as a percentage of total living expenditures fell from 13 percent in 1981 to 7 percent in 1994 (*SSB, Statistical Yearbook, 1995*, p. 263).

China's planners published targets for the last year of their Ninth FYP (1996-2000). The total grain production target is 500-515 million tons, 35-50 million tons above the 465 million ton figure for 1995.

Through the year 2005, China's total grain output is projected to rise primarily because of yield increases. As noted in the input section, the rate of yield growth will largely be determined by government action either investing in imported technology or developing their own high yielding seeds. Grain consumption is projected to rise faster than production so that China's grain exports likely will decrease and imports likely will rise.

Wheat Output Forecast To Increase in 1996

Wheat Outlook for 1996

Wheat output for 1996 is projected at 104 million tons, 2 million tons more than the 1995 crop. Preliminary reports from China suggest that the summer grain crop for 1996 will be up 2 percent from last year (most of this crop is winter wheat). Urban retail standard wheat flour prices rose about 13 percent in calendar year 1995. Higher wheat prices are projected to boost 1996 wheat area to 29.4 million hectares, up more than 600,000 hectares from last year. Government authorities plan to raise the fixed quota price for wheat from about 1270 RMB per ton, to 1525 RMB per ton, a 20-percent increase. The fixed quota price is well below the 1995 market price of 1820 RMB per ton (figure 13). Yields are projected at 3.54 tons per ha., the same as last year. Wheat imports for the July/June 1996/97 year are projected to decrease by 2 million tons to 10 million because of high world prices and a good crop in 1995. Imports will help meet consumer demand for higher quality and specialty wheats, and to overcome domestic transportation constraints. Real urban per capita incomes are projected to rise 5 percent in 1996.

Wheat Outlook to 2005

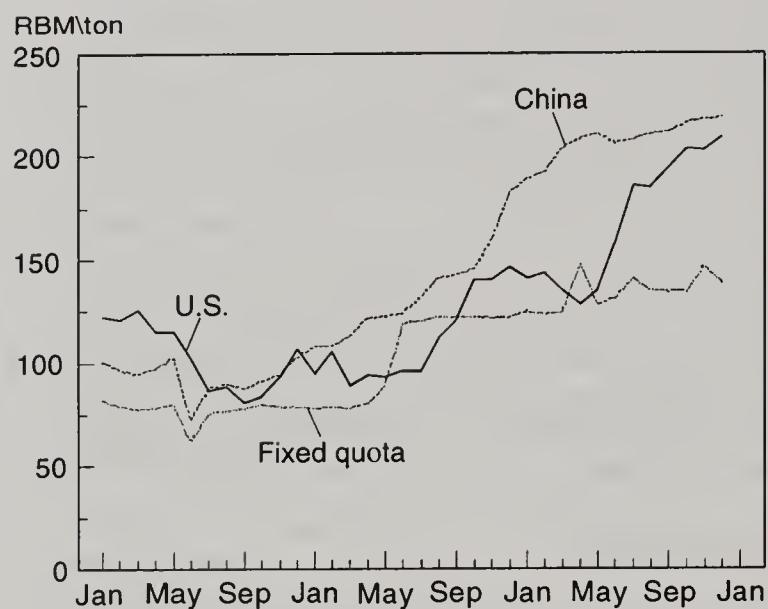
Up to 2005, China's wheat output is projected by USDA to increase at an annual rate of about 1 percent. While area is projected to rise 0.3 percent a year, yields likely will increase at a much faster pace of around 0.7 percent a year. Rapid economic growth rates, rising incomes, and changes in consumer preferences for quality wheat products, and a projected population growth of 100 million for the coming decade, will boost domestic demand above supply. USDA projections place China's wheat imports in 2005/06 at 18.2 million tons, compared with an average of 10 million tons during the Eighth FYP (1991-95) (2).

Per capita wheat consumption rose sharply in the 1970s and early 1980s, but has leveled off since then. In figure 14, wheat consumption in China is compared with per capita basis in Japan and the United States. Feed wheat use has been subtracted from total wheat consumption for each country to obtain wheat used primarily as a food grain. On this basis, wheat consumption in China parallels that of consumption in the United States since the mid-1980s. Both the United States' and China's consumers eat more wheat than citizens in Japan. For example, in 1994, citizens in China consumed 90 kilos per capita compared with 50 kilos in Japan, and 89 kilos in the United States.

With regard to domestic wheat consumption in China, there may be some trends which offset each other. In the major wheat producing regions in north China, we expect residents to consume less wheat but eat more rice, meat, vegetables, and fruit products. In the major rice producing regions in south China, we expect citizens to consume less rice but eat more wheat, meat, vegetables, and fruit products. In 1991, per capita wheat (flour) consumption of urban residents in Beijing was 27 kilos per year compared with 2 kilos in Guangzhou (SSB, *Urban Household Income and Expenditure Surveys*, 1991, p. 251).

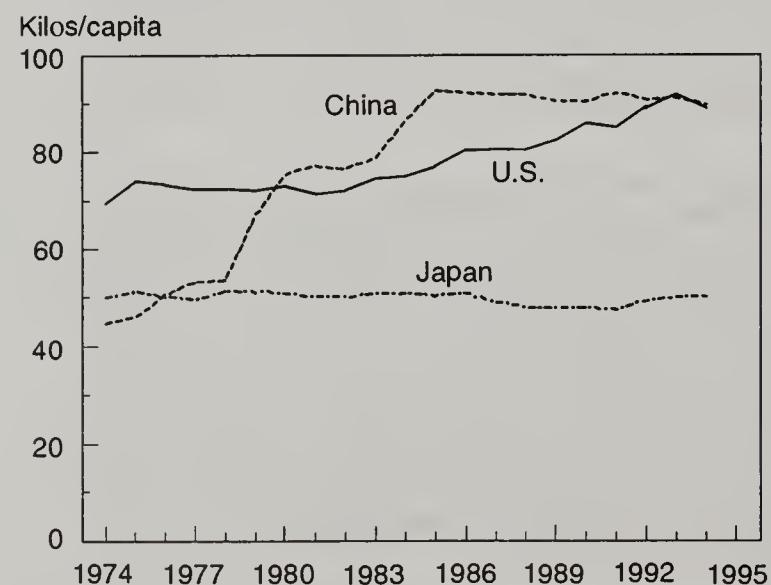
The most recent flour consumption data is for 1993 and comes from the SSB Urban Household Income And Expenditure Survey. That survey ranked households by per capita income

Figure 13
China's Domestic Prices Compared with U.S. HRW FOB Gulf



Source: USDA, ERS Database.

Figure 14
Per Capita East Asian Non-feed Wheat Consumption



Source: USDA, ERS Database.

such that households in the highest decile had 3.6 times more income than those in the lowest decile group. Consumers in the highest decile ate about 25 kilos of flour per year compared with those in the lowest decile, which consumed about 28 kilos of flour. But incomes affected the kinds of flour the different income groups consumed. Consumers in the highest decile consumed 27 percent less ordinary flour (lower quality flour) than those in the lowest decile and conversely they consumed 25 percent more higher quality flour than those in the lowest decile.

Wheat Situation in 1995/96

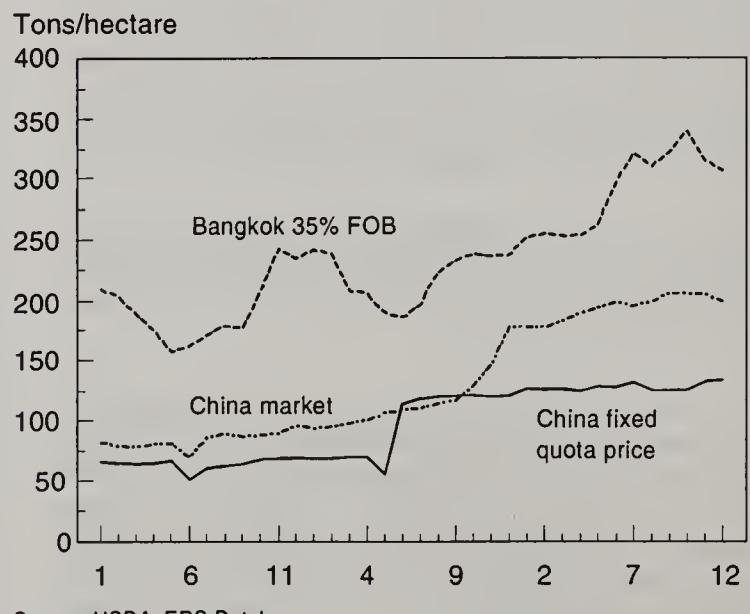
Wheat production in 1995/96 increased to 102 million tons, up 2.7 percent from 1994, as area remained largely the same at 28.8 million hectares, but yields increased slightly from 3.43 tons per hectare in 1994 to 3.54 tons in 1995 (appendix table 1). Wheat imports for the July 1995/June 1996 year are estimated at 12 million tons, up from the 10.2 million tons imported in 1994/95, despite rising world wheat market prices. There are several factors behind the increase in imports for 1995/96. In this same period, real per capita income rose 4.9 percent. Authorities were faced with rising urban flour prices that could only be stabilized by stock drawdowns, purchasing domestic wheat at higher than world prices, or importing wheat (figure 13). The government-owned Grain Bureau purchased some wheat from farmers at fixed quota prices which were well below the open market price. One of the avenues they opted for was to import wheat. For China's wheat imports and U.S. wheat exports to China for 1994 and 1995, see appendix table 11.

Rice Production To Increase in 1996

Outlook for 1996

Rice area for 1996 will likely increase only slightly to 30.9 million hectares, according to planting surveys from China. The tendency to decrease rice area in favor of more profitable

Figure 15
China's Domestic Prices Compared with Thai 35 Percent Broken



Source: USDA, ERS Database.

land use such as raising vegetables, fruits, and economic crops, will be offset by the government's "grain bag" policy in which provincial governors are required to maintain area sown to grain (see section on agricultural policies). The open market price increases should boost growers' enthusiasm for rice cultivation in 1996. Indica open market rice prices rose from US\$190 per ton in January to US\$236 per ton in December, an increase of 24 percent. The government recently announced a decision to raise the fixed quota price from US\$128 in 1995 to US\$153 in 1996. The government requires farmers to sell some of their rice crop to the Grain Bureau at fixed quota prices which are well below the open market price (figure 15). Japonica open market rice prices increased from US\$215 in January to US\$268 in December, an increase of 25 percent.

Yields are expected to increase slightly because government measures will insure a rise in input supplies. Rice imports are likely to be about the same as for the previous year and will include both high-quality varieties from Thailand destined for high-income urban residents and lower quality varieties for the urban poor. For the year, exports likely will fall.

China's rice exports dropped sharply from 1.5 million in 1993/94 to 32,000 tons in 1994/95, but are expected to rebound to an estimated 200,000 tons for 1995/96. The increase in domestic rice prices compared with world market prices made China rice less attractive to foreign buyers (figure 15). In China's rice marketing year 1995/96, the first year indicates the marketing year, e.g., 1995 represents rice output for 1995 which is marketed in 1996. According to China's custom statistics, most exports in 1995 went to Hong Kong, Indonesia, and Russia. It is estimated that most of the rice exports were of the indica variety.

China's rice imports soared from 700,000 tons in 1993/94 to 2.0 million tons in 1994/95 but are forecast to drop to 750,000

tons in 1995/96. China's custom statistics report that Thailand and Vietnam were China's prime rice suppliers in 1995.

Outlook for 2005

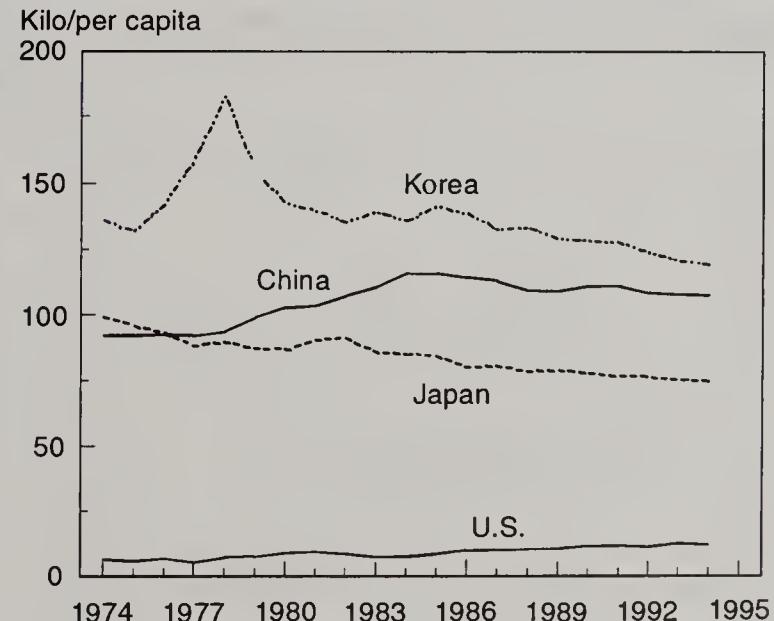
China's rice output by 2005 is projected to decrease at an annual rate of 0.1 percent a year. Area sown to paddy likely will decrease slightly (-0.8 percent) because returns from rice cultivation are projected lower than other uses, but yields are expected to increase 0.7 percent a year (figure 16). In Hunan province (a major rice producing province), indica rice yields are higher than those in other Asian countries but lower than those in Arkansas. There is some room for rice yields to increase.

China's rice exports are projected to decrease 0.1 percent a year during the projection period because of rising domestic demand for both indica and japonica varieties. On an annual basis China is expected to export around 400,000 tons. Most of these exports will be japonica rice shipments to East Asian neighbors, but it is also possible that China could ship lower quality rice for Asian, African, and European markets.

Rice imports are projected to increase at an annual average rate of 2.2 percent from 900,000 tons in 1996/97 to 1.1 million tons in 2005/06. Demand for rice imports will increase largely because of rising urban incomes as consumers seek diversity and high quality rice. But these imports likely will also include some lower quality rice to supply the requirements of lower income consumers in big cities (2).

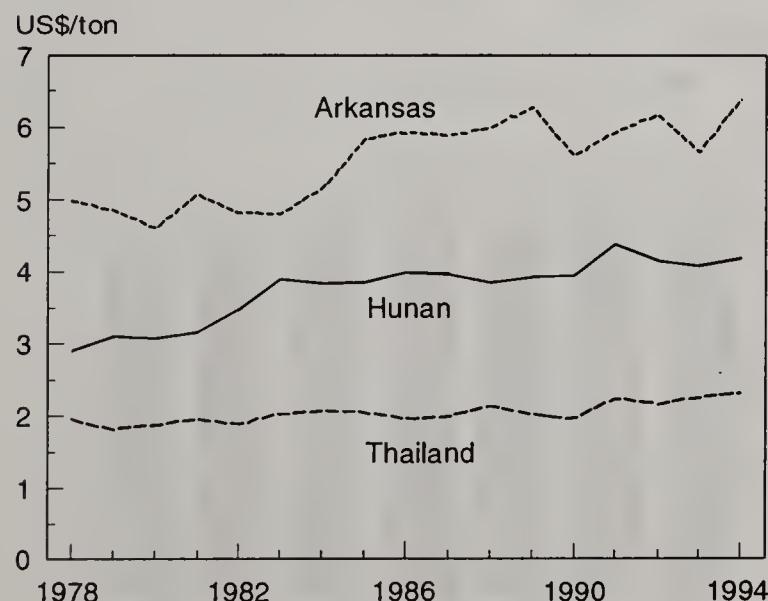
Consumers in urban areas are eating less rice and more meat, fruits, vegetables, and wheat products. High income urban residents tend to shop for their rice in open free markets where they can purchase fresh domestic and imported rice varieties. Poorer urban residents had more difficulties purchasing rice in 1995 because of the rapid increases in rice prices. In

Figure 17
Per Capita East Asian Rice Consumption



Source: USDA, ERS Database.

Figure 16
Hunan Indica Rice Yields Compared with Those from Arkansas and Thailand



Source: USDA, ERS Database.

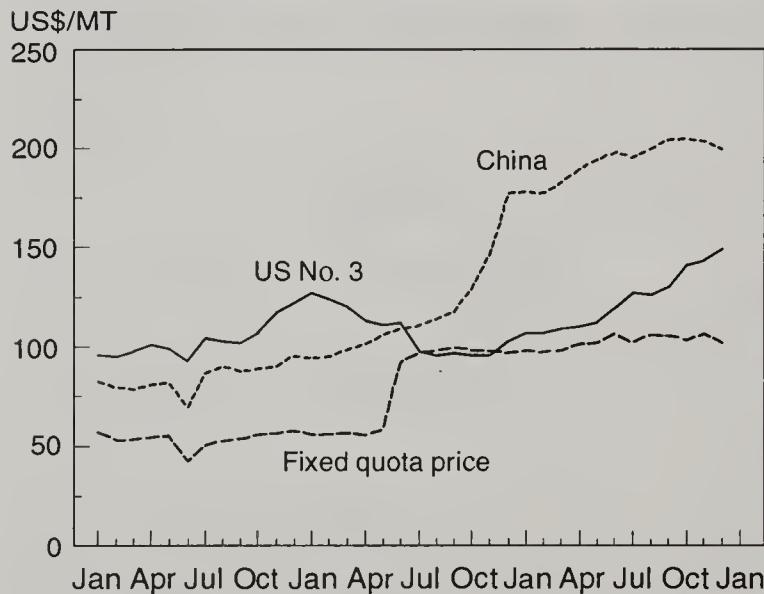
mid-1994 government authorities responded to surging prices by re-instituting rationing for the urban poor. They supplied fixed quantities of lower quality rice at fixed prices. China has been importing both low and high quality rice to supply two very different markets in urban areas. The 1993 SSB data shows that households in the highest decile had 3.6 times more income than in the lowest decile group. But the difference in rice consumption between the two income groups was not that great. Consumers in the highest decile ate a little more than 56 kilos of milled rice per year (8.8 percent more) compared with those in the lowest decile who consumed about 52 kilos.

Citizens in China consume much larger quantities of rice per capita than do consumers in the United States (figure 17). Rice consumption trends in China, however, parallel those in Korea and Japan where one can observe static or falling per capita rice consumption. China's consumers seem to be following in the foot steps of their East Asian neighbors such that as per capita incomes rise, and more foodstuffs are available domestically and from foreign suppliers, families tend to reduce rice consumption and eat more wheat products, meat, fruits, and vegetables.

Rice Situation, 1995

Rice output for 1995 was 185 million tons (paddy basis), up 5.3 percent from the 176-million-ton 1994 crop (appendix table 1). The primary reason for the increase stemmed from a 1.8-percent increase in area from 30.1 million hectares in 1994 to 30.7 million hectares in 1995 and a 3.4-percent increase in yields. In mid-1995, it was thought that heavy rains in June might have damaged the early rice crop but the damage must have either been slight or provinces allocated more resources in the summer to insure bumper harvests for the late crops.

Figure 18
China's Domestic Prices Compared with
U.S. #2 Yellow Corn FOB Gulf



Source: USDA, ERS Database.

Large Corn Crop for 1996

Outlook for 1996

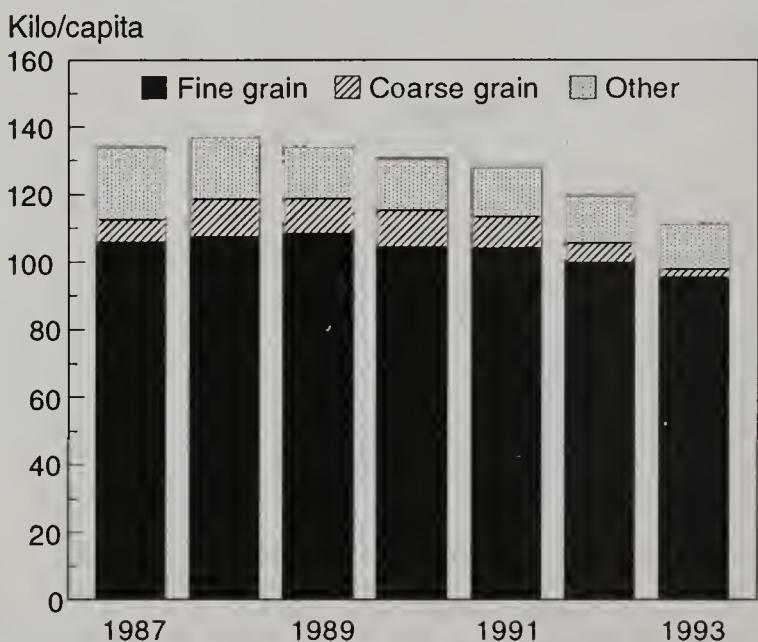
Rising corn market prices in 1995 and the government's decision to increase the fixed quota price by 20 percent in 1996 from US\$104 to US\$125, likely will sustain grower's interest in raising corn in 1996. For example, wholesale corn prices rose from US\$179 in January to US\$200 in December 1995. Wholesale corn prices did fall from a peak of US\$204 in October to US\$200 in December and fell further in spring 1996 to around US\$180 (figure 18). Again we point out that the government requires farmers to sell some of their corn crop to the government's Grain Bureau at the fixed quota price of US\$125 per ton, well below the open market price. Sown area for 1996 is forecast at 23.5 million hectares, up 733,000 hectares from 1995. Yields are projected at 4.85 metric tons per hectare, down slightly from the 1995 yield of 4.9 tons per hectare which is projected to make a crop of 114 million tons, 2 million more than last year. Corn exports for Oct/Sep 1995/96 are projected at 500,000 tons. Major export destinations will continue to be South Korea, North Korea, Japan, Russia, Malaysia, and other Asian ports. Imports are projected at 2 million tons.

China has been purchasing malting barley for its rapidly expanding beer market. Beer output increased from 690,000 tons in 1980 to 15.5 million tons in 1995. Barley is grown in the same areas as wheat, and like wheat, there are few possibilities to expand production. Land and weather factors do not favor brewing barley production in China and breweries have turned to the international grain market to supply malting barley. As was the case with wheat, COFCO manages the imports of barley.

Outlook to 2005

Over the next decade, China's corn output is projected to increase at an annual rate of around 2.3 percent. Area sown to corn is projected to increase at an annual average rate of

Figure 19
Per Capita Urban Grain Consumption



Source: SSB, Urban Household Sample Survey.

0.7 percent and yields at 1.7 percent. But rapid economic growth, rising incomes with consumer preferences for livestock products, and population growth during the decade likely will boost domestic demand above supply. Corn imports are projected to rise from 2.5 million tons in 1995/96 to 11.8 million tons by 2005/06. Corn exports fell from more than 12 million tons in 1992/93 to an estimated 500,000 tons in 1995/96. China's corn exports are projected to remain at 1 million tons from 1996 through 2005. Most of these corn exports will come out of China's northeast provinces which is China's main corn producing area and has good transportation links to Russia, Korea, and Japan (2).

SSB urban household income and expenditure surveys provide some insights into coarse grain consumption trends in urban areas (figure 19). The surveys collected three categories of grains consumed by urban households. "Fine grains" include wheat, rice, and millet. "Coarse grains" presumably include corn, sorghum, barley, and oats. "Starches and potatoes" include sweet potatoes, Irish potatoes, and starches and other potato categories. Urban per capita grain consumption decreased from 134 kilos in 1987 to 113 kilos in 1993. Fine grain consumption as a percentage of total increased from 79 percent in 1987 to 84 percent in 1993. Potato and

starch consumption fell from 16 percent in 1987 to 12 percent in 1993, and coarse grain consumption fell by more than half from 5 percent in 1987 to 2 percent in 1993.

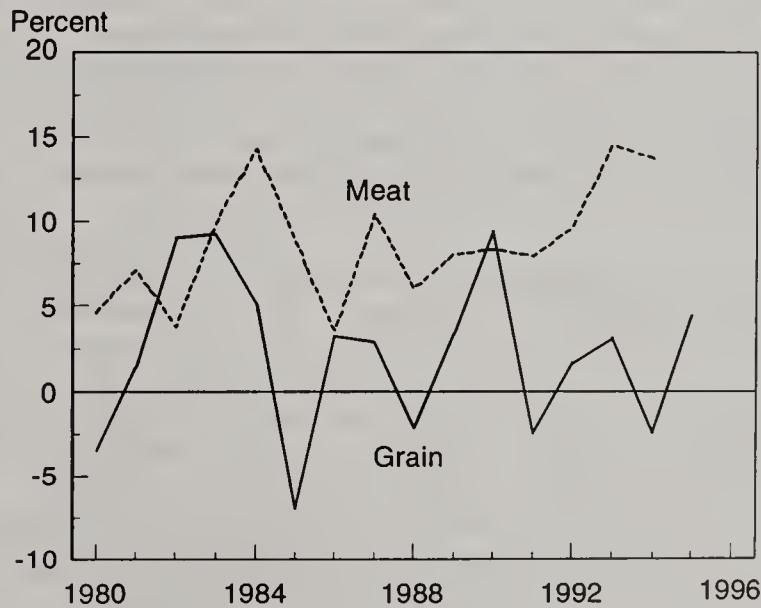
Corn Situation, 1995

Corn output in 1995 was a record 112 million tons, up 12.8 percent from the 1994 crop. Area increased 7.6 percent to 22.8 million hectares. Large inputs of chemical fertilizer, especially phosphate fertilizers, supported the 4.8 percent increase in yields which reached 4.9 tons per hectare (appendix table 1 and 2).

In 1993/94, China exported 11.8 million tons of corn with no imports. In 1995/96, however, China's corn trade shifted dramatically, with exports projected to fall to 500,000 tons while imports are forecast to reach 2 million. Several factors underlie this dramatic trade shift. First, earlier in the 1990's the government reduced its subsidies for government grain companies holding corn stocks. This policy change encouraged firms to dump corn into the market which temporarily boosted supplies for livestock feed and for export. Second, government authorities boosted corn procurement prices in 1994 and 1995, which set off price increases throughout the corn economy. Domestic corn prices quickly shot above the world price (figure 18). Third, the demand for livestock products and consequently for feed continued to rise rapidly because of increases in population and urban incomes.

China faced the following choices: allow urban meat prices to rise (increasing feed costs) and corn prices to remain above world price levels, reduce prices by selling stocks, reduce exports, or import corn. In fall 1994, foreign trade authorities issued instructions to ban corn exports and in December, China contracted to purchase corn on the international market. In 1995, China's state trading corporation COFCO (Cereals, Oils and Foodstuffs Import and Export Corporation, which used to be known as CEROILS) limited corn exports and purchased corn on the international market. But with the

Figure 20
Annual Percentage Change in China's Grain and Red Meat Production, 1980-95



Source: USDA, ERS Database.

Table 12--China's grain production, trade, and stocks for 1994/95, 1995/96, and 1996/97*

Indicator	1994/95	1995/96	1996/97
Million tons			
Total grain ¹		Jan/Dec	
Production	445.10	466.81	470.00+
USDA definition	335.33	354.64	NA
Imports	5.66	17.75	NA
Exports	14.95	1.22	NA
Stocks	70.67	74.50	NA
Wheat		July/June	
Production	99.30	102.00	104.00
Imports	10.24	12.00	10.00
Export	0.03	0.02	0.03
Stocks	21.72	22.70	22.67
Rice		Jan/Dec	
Prod. (paddy) ²	175.93	185.22	NA
Imports (milled) ²	2.00	0.75	NA
Exports (milled)	0.03	0.20	NA
Stocks (milled)	21.29	20.49	NA
Corn		Oct/Sep	
Production	99.28	112.00	114.00
Imports	4.29	2.00	2.00
Exports	1.50	0.50	0.50
Stocks	27.50	31.00	29.50

* USDA forecasts as of June 1996. ¹ Wheat, rice (on a paddy basis), coarse grains, soybeans, potatoes (grain-equivalent weight using a 1:5 ratio of grain to raw weight), pulses, and other grains are included in total grain. ² For the 1994/95 rice marketing year, trade data are for calendar 1994.

Source: USDA data base.

Table 13--China meat production

Item	1992	1993	1994	1995
Million tons				
Pork	26.4	28.5	32.0	36.5
Beef	1.8	2.3	3.3	4.1
Mutton	1.3	1.4	1.6	2.0
Poultry	4.5	5.7	7.5	7.6

Sources: SSB, *Statistical Yearbook 1995*, and SSB, *Statistical Abstract, 1996*.

record 1995/96 corn crop and very high international corn prices, there were news accounts in spring 1996 that China might lift its ban on corn exports which would allow some of the exporting provinces an opportunity to participate in the trade.

Livestock and Feed Situation

In 1995, red meat output rose 15.2 percent to 42.5 million tons compared with a 14.5-percent increase in 1994. With a reduced 1994 corn crop and rising corn prices in 1995, one might think that growth in meat output and livestock numbers might slow. Yet, large animal numbers and hog inventory numbers at the end of 1995 increased by 6.8 percent and 6.5 percent, respectively (appendix table 2 and 4).

Provincial officials noted in late 1995 that there were three reasons for increased meat output in 1995. During 1994, many farmers made a lot of money (the price of piglets were low and grain prices were beginning to rise) and the price of pork rose. At the end of 1994, farmers had a good year and many producers kept on producing. Pork prices fell a little in the first part of the year and corn prices rose. Some small producers went bankrupt but the larger operations remained in the business—they expected prices to rebound at the end of the year (and getting ready for Chinese New Year's). Second, in pork deficit provinces, local governments had a responsibility to purchase pork and support pork output through the “vegetable basket” program (see agricultural policy section).

Why Slow Growth in Grain, But Rapid Rise in Meat?

In summer 1995, officials dealing with the livestock sector in China were asked how one could explain the contradiction between slow growth in grain output but more rapid growth in meat output over the past decade (figure 20). The year-to-year changes in output are expressed in percent. Because grain and oilseeds produced in one year are used for feed in the subsequent year, the percentages for livestock output in figure 20 are lagged 1 year.

Some officials suggested that China's livestock increases are not totally dependent on grain output. They noted that ruminant animal (beef, sheep, and goat) output is up and these animals feed mostly on grass, not grains. Secondly, they noted that poultry production is increasing rapidly and chickens get better feed conversions than pigs. Third, they suggested that human grain consumption patterns are changing—per capita grain consumption is falling which frees up more grain for livestock feed. Finally, the introduction of technology enabled farmers to become more efficient in the use of feed. Other officials suggested that a possible expla-

nation for the contradiction was that grain output was under reported, farmers fed this under reported grain to livestock which were slaughtered and counted in meat output statistics.

Hog numbers at yearend totaled 441.5 million, up from 414.6 million in 1994. During the year 480 million hogs were marketed. Pork output rose 13.8 percent to 36.5 million tons.

Cattle numbers increased to 126.7 million, up 2.7 percent from 1994. Beef output rose to 4.1 million tons. Milk production increased by 6.4 percent to 5.6 million tons.

Goat numbers rose to 143.4 million, up 16 percent from 1994. But sheep numbers dropped to 115.6 million, down from 117.5 million in 1994. Goat and sheep meat production rose from 1.61 million tons in 1994 to 1.97 million tons in 1995.

Outlook for 1996

Outlook for Ninth FYP and 2005

During the Ninth FYP, authorities plan to expand meat output. Specifically, they plan to expand output of those kinds of meat animals which are efficient users of grain and oilseed products, such as poultry.

Beef production is expected to rise from 4.7 million tons in 1996 to 9 million in 2005, an average annual increase of 3.7 percent. This would raise per capita consumption from 4.7 kilos per capita in 1996 to 6.8 kilos in 2005.

Pork will continue as China's most important meat product, but its percentage of total consumption will continue to fall as grass fed animal output increases and producers turn to more efficient meat producers such as poultry. Pork output is projected to increase from 37 million tons in 1996 to 56 million tons in 2005, an average annual increase of 3.5 percent. China is not expected to import or export much pork during this period. Per capita pork consumption is projected to rise from 29.7 kilos in 1996 to 42.2 kilos in 2005.

Poultry output is expected to expand rapidly, from 8.8 million tons in 1996 to 15.4 million in 2005, an average annual increase of 6.5 percent. In 1995, China is estimated to have exported 370,000 tons of poultry (primarily chicken parts to East Asian neighbors, Europe, and Middle Eastern countries) and by 2005 these exports are expected to rise to over 800,000 tons. Poultry meat imports (primarily chicken parts) amounted to 446,000 tons in 1995, and these imports are expected to increase to 1.5 million tons by 2005. Per capita poultry meat consumption is projected to rise from 7.4 kilos in 1996 to 11.8 kilos in 2005.

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Sources for this section come from materials collected by ERS and Foreign Agriculture Service.

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Edible Oil Imports To Remain High in 1996

China imported a record 4.2-million tons of edible oil in 1994/95, and is projected to reduce its total edible oil imports at a remaining high level in 1995/96, but oilseeds and oilseed meal imports will increase. In calendar year 1995, China imported 144,000 tons of soybeans from the United States, and total soybean imports are projected to be quadrupled in 1995/96. Total edible oil exports will remain at the previous year's level in 1995/96, while the exports of oilseeds and oilseed meals will fall, especially for oilseed meals, their exports will fall significantly. [Xinshen Diao (202) 219-0690]

Oilseed production for 1995 reached 43.3 million tons, 2 percent above 1994's record of 42.4 million tons (table 14). Soybean production decreased significantly, while record rapeseed and peanut crops were reaped for the second year in a row. The 31 percent increase in rapeseed production in 1995 boosted supplies, which dampened farm prices and discouraged farmers from increasing planted area for 1996. Area sown to soybeans will also likely decrease because the government intends to raise procurement prices for wheat and corn crops that compete with soybeans for planted area. Oilseed area for 1996 likely will decline, and total oilseed production is expected to fall in 1996 (appendix table 2 and 3).

Oilseed meal production is anticipated to rise in 1995/96 because of an increase in rapeseed crop which has a higher crush rate than soybeans. Domestic demand for meals continue to grow, and meal exports are expected to decline by 34 percent in 1995/96. With an expected decline in 1996's oilseed production, meal production is expected to fall in 1996/97. Increases in domestic demand for meals will likely further push exports to fall in 1996/97. Meal imports are expected to increase by 62 percent in 1995/96, and will increase further in 1996/97.

Vegetable oil demand has increased with rising household income and rapid development in food processing industries. In 1994/95, vegetable oil imports soared to 4.1 million tons, accounted for 41 percent of total supply for that year and hence stocks were built up. Oil imports are expected to fall to 3 million tons in 1995/96.

Soybean Production Down, Rapeseed Up in 1995

Soybeans account for about 32 to 38 percent of total oilseed output, while rapeseed accounts for another 17 to 22 percent. Soybean area declined by 11 percent and production declined by 15.6 percent in 1995 from the previous year. Soybeans are considered a grain crop in China, and farmers in the prime producing provinces have to pay attention to government procurement policies and prices. Most of the time, government procurement prices are lower than market prices. As the government is committed to maintaining "limited self-sufficiency" in grains, many incentives to encourage the production, such as input subsidies, low interest loans, and guaranteed purchase, are used for rice, wheat, and corn production. But soybeans have not been subject to the same degree of government supports. In 1996, the central government in-

tends to increase procurement prices by 20 percent for rice, wheat, and corn. This implies that the incentive situation for soybeans relative to other grains will not be improved in 1996.

Changes in market prices also discouraged farmers from raising soybeans in 1995. After 3 years of continuous increases in total area and output, from fall of 1994, soybean market prices fell relative to other grains, especially corn. As corn and other crops compete with soybeans, the soybean area, and hence production, are expected to be lower than 1995's level. According to China's State Statistical Bureau's

Table 14--China's oilseed output and trade

Indicator	1993/94	1994/95	1995/96
1,000 tons			
Total oilseeds ¹			
Production	38,610	42,378	43,283
Imports	130	405	762
Exports	1,702	1,165	880
Soybeans (Jul/Jun)			
Production	15,310	16,000	13,500
Imports	125	154	600
Exports	1,100	600	300
Cottonseed (Oct/Sep)			
Production	6,658	7,704	8,440
Imports	2	5	2
Exports	20	15	10
Peanuts (Oct/Sep)			
Production	8,420	9,682	10,200
Imports	3	6	10
Exports	472	470	480
Rapeseed (Oct/Sep)			
Production	6,940	7,492	9,743
Imports	0	240	150
Exports	50	50	50
Sunflowerseed (Oct/Sep)			
Production	1,282	1,500	1,400
Imports	0	0	0
Exports	60	30	40

Sources: USDA, PS&D, June 1996.

¹ USDA definition includes soybeans, cottonseed, peanuts, rapeseed, and sunflowerseed.

projections, the area sown to soybeans will decrease by 2.9 percent and production will fall by 4.6 percent from last year.

Excluding 1992, China exported more than 1 million tons of soybeans each year between 1984 and 1993. By 1994/95, soybean exports fell to only 600,000 tons. Because of the decrease in soybean production in 1995, soybean exports are expected to decrease to 300,000 tons in 1995/96. Given the existing crushing capacity, increasing feed demand for soy meal, and human demand for soy oil, soybean imports will likely quadruple in 1995/96 compared with the previous year, and will continue to increase in 1996/97 (appendix table 12).

Responding to high market prices in 1993 and 1994, rapeseed area in 1995 was up 28 percent over the previous year's planted area. Most of increased areas occurred in the traditional primary producing areas in the Yangzi River basin. Production increased 31 percent and per hectare yield reached a record 1,424-kilograms. However, as a result of 2 consecutive years of large harvests, farmers are having difficulty selling their crop and have accumulated stocks. Although government owned Grain Bureaus are purchasing some of the stocks, the prices they are offering are much lower than the 1995 average prices. As a result, farmers may switch to more lucrative crops. Thus, a decline in rapeseed area is expected for 1996. Dry and cold weather during the rapeseed transplanting period, and lack of sunshine in the early spring, depressed the yields of the 1996 crop. A significant decline in rapeseed production is expected in 1996.

Domestic rapeseed surpluses will likely slow imports in 1995/96 (rapeseed imports accounted for 2 percent of total supply in 1994/95). Given the increased domestic demand for oil, it is likely that the large 1995 crop will be crushed rather than exported.

Cottonseed production is determined by cotton area and production. (See cotton section and Appendix table 3 for details.)

Peanut area increased slightly in 1995, and yields increased by 4.7 percent from the previous year, so that peanut production, accounting for 23 percent of total oilseed production, was up from 9.7 million tons in 1994 to 10.2 million tons in 1995. Most of the main peanut producing provinces in north China also raise cotton, such as Hebei, Shandong, and Henan. Farmers shifted area from cotton to peanuts after the 1992 bollworm problem, but as the Government raised cotton procurement prices in 1995 and 1996, farmers began to switch from peanuts back to cotton. Peanut area is expected to continue to fall in 1996. But, with significant improvements in peanut yields since the early 1990's, better yields could result in output about the same as in 1995.

China is a net exporter of peanuts and annually ships out about 5 percent of total peanut output. This situation is not expected to change significantly in the next 2 years. But, as domestic crush grows faster than food use, the quantity exported might decrease slightly (appendix table 12).

Oilseed Meal Exports Fall and Imports Rise in 1995/96

Total oil meal production will be up 4.6 percent in 1995/96, and the mix of meals will be very different. Soybean meal production is projected down over 841,000 tons because of the decrease in soybean production, while an increase in rapeseed meal production will offset the decline in soy meal. Availability for feed use meal will drop as very little rapeseed meal can be used for feeding. Rapid increases in meal consumption, driven by rising demand for livestock feed, and the decrease in soy meal production, will cut total meal exports in 1995/96. China exported 30 percent of its meal output between 1987 and 1990. In 1994/95, meal exports were still as high as 2.6 million tons, accounting for 16 percent of total production. With lower production of soy meal, which accounts for almost 50 percent of total meal exports, and increases in the feed demand for meal, meal exports in 1995/96 are expected to fall 34 percent from the previous year and this trend is expected to continue in 1996/97. Meal imports, accounting for 5 percent of total oil meal consumption in 1994/95, are expected to increase by 75 percent in 1995/96 from the previous year, and will likely continue to increase in 1996/97. It is possible for China to become a net meal importer in 1996/97.

Table 15--China's main vegetable oil output and trade

Indicator	1993/94	1994/95	1995/96
1,000 tons			
Total oils ¹			
Production	5,209	5,992	6,639
Imports	2,487	4,115	3,017
Exports	484	470	470
Soybean oil (Oct/Sep)			
Production	1,086	1,220	1,063
Imports	640	1,700	1,300
Exports	38	60	50
Peanut oil (Oct/Sep)			
Production	1,113	1,354	1,430
Imports	12	15	15
Exports	66	30	100
Rapeseed oil (Oct/Sep)			
Production	2,047	2,288	2,945
Imports	360	750	300
Exports	93	150	120
Palm oil (Oct/Sep)			
Imports	1,420	1,550	1,350

Sources: USDA, PS&D, June 1996.

¹ Percentage of each crop crushed for oil is given in parentheses. USDA definition of China's oil production includes oils crushed from soybeans (51%), cottonseed (83%), peanuts (59%), rapeseed (90%), and sunflowerseed (72%), while oil imports and exports include soy oil, peanut oil, rapeseed oil, palm oil, coconut oil, and olive oil.

Edible Oil Imports and Exports Both Fall in 1995/96

With rapid economic growth and rising living standards, China will increase its vegetable oil consumption. Given cultivated land constraints and the central government's concern for grain production, increases in oilseed production will likely lag behind increases in demand, despite possible higher yields for main oilseeds, such as rapeseed, peanuts and soybeans. Consequently, rising imports and decreasing exports will dominate future trends in edible vegetable oil (table 15).

In 1994/95, China doubled its rapeseed oil imports, with its share in total vegetable oil imports increasing to 18 percent. A record rapeseed harvest in 1995 will push rapeseed oil imports down in 1995/96, and quantities exported are also expected to decline slightly.

Soy oil imports increased 166 percent in 1994/95, accounting for 41 percent of total oil imports. As incomes grow, China's consumers, especially urban dwellers, are shifting from low quality oils, such as rapeseed and cottonseed oils to high

quality refined oil. Whereas rapeseed oil in international markets is considered a high quality oil, in China it is generally regarded as low quality. Poor processing capacity causes the oil to contain impurities and a high erucic acid content. The decrease in soybean production likely will stimulate soy oil imports. However, the magnitude of soy oil imports in 1994/95 pushed total soy oil supply up 69 percent from the previous year. Hence, part of 1994/95 soy oil imports used to restrain price increases likely led to a buildup in stocks. Soy oil imports are expected to decline in 1995/96, but will remain much higher than in 1993/94.

Palm oil imports comprise more than 40 percent of total vegetable oil imports. The rapid development of fast food processing industries, especially instant noodle production, has sharply increased the demand for palm oil. Palm oil's low price, neutral flavor in processed food, and low boiling point, gives it a comparative advantage in food processing. In 1994/95, palm oil imports increased 13 percent from the previous year, reflecting the increase in the demand for processed foods. Palm oil imports in 1995/96 are expected to be down slightly from last year.

The primary suppliers of soy, rapeseed, and palm oil, which are the three main imported oils, are shown in table 16.

Long-term Outlook for Oil Consumption And Imports

China's per capita edible vegetable oil consumption of 7.5 kilograms per year is low compared with Korea (12.2 kg), Japan (16.7 kg), Hong Kong (23.1 kg), and Taiwan (24.3 kg). There are three main categories for vegetable oil consumption in China: household cooking use; hotel, work place cafeteria, and restaurant use; and use in food processing and other industries. Urban households consume 45 percent more cooking oil per capita than rural households. In 1994, urban dwellers consumed 8.22 kilograms of cooking oil per capita, with vegetable oil accounting for 92 percent; while rural dwellers consumed 5.66 kilograms, with animal fats and oils accounting for 30 percent of consumption (table 17).

As incomes grew, total demand for edible oils rose; also there was a substitution effect as consumers switched from using animal fats and oils to vegetable oils. But the growth rate of household cooking oil consumption slowed after 1989. From 1977 to 1988, household per capita vegetable oil consumption

Table 16--China's calendar year edible oil imports by country, 1994-95

Item	1994	1995
	Tons	
Soybean oil	1,063,518	1,481,813
Argentina	139,787	93,182
Brazil	740,337	806,079
United States	137,268	495,328
Rapeseed oil	544,930	630,674
Germany	299,119	307,882
Canada	50,302	86,983
United States	10,084	66,141
Palm oil	1,456,671	1,396,863
Indonesia	144,384	101,845
Malaysia	899,099	1,083,219
Singapore	172,545	82,953

Source: China's Customs Statistics, 1994-95.

Commodity code: soybean oil 15071, 15079; rapeseed oil, 15141, 15149; and palm oil, 15111, 15119.

Table 17--Per capita edible oil consumption in China

Indicator	1987	1988	1989	1990	1991	1992	1993	1994
	Kilograms							
Urban households								
Vegetable oil	6.44	6.69	6.16	6.40	6.93	6.65	7.14	7.53
Animal oil	n.a.	n.a.	n.a.	n.a.	n.a.	0.66	0.63	0.69
Rural households								
Vegetable oil	3.11	3.28	3.27	3.54	3.85	4.07	4.06	4.11
Animal oil	1.58	1.48	1.54	1.63	1.80	1.78	1.60	1.55

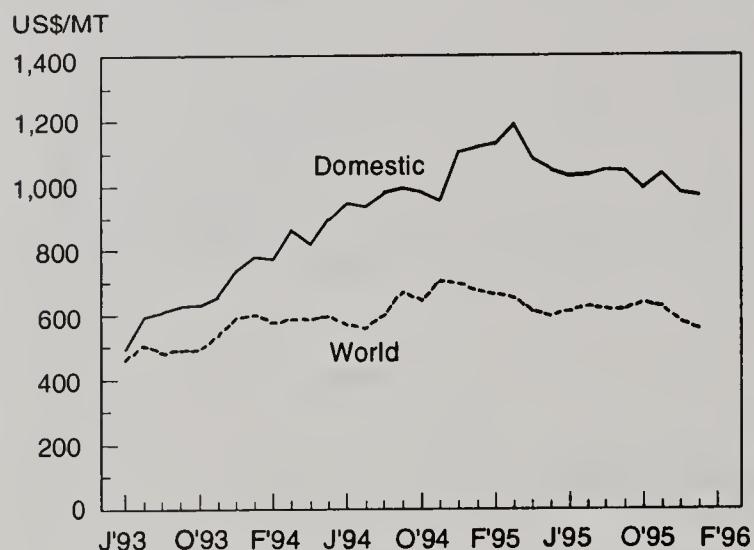
Sources: SSB, *China Statistical Yearbook, 1978-1995* and *China Rural Statistical Yearbook, 1978-1995*.

Table 18--China urban per capita edible oil consumption by different income levels, 1994

Indicator	Average	1st decile	2nd decile	9th decile	10th decile
Annual income (yuan)	3,502.31	1,734.57	2,238.37	5,007.24	6,837.81
Annual living exp. (yuan)	2,851.34	1,644.56	2,028.80	3,880.91	4,799.83
Veg. oil cons. (kg)	7.53	6.58	7.16	8.07	8.36
Animal oil cons. (kg)	0.69	0.67	0.70	0.66	0.76

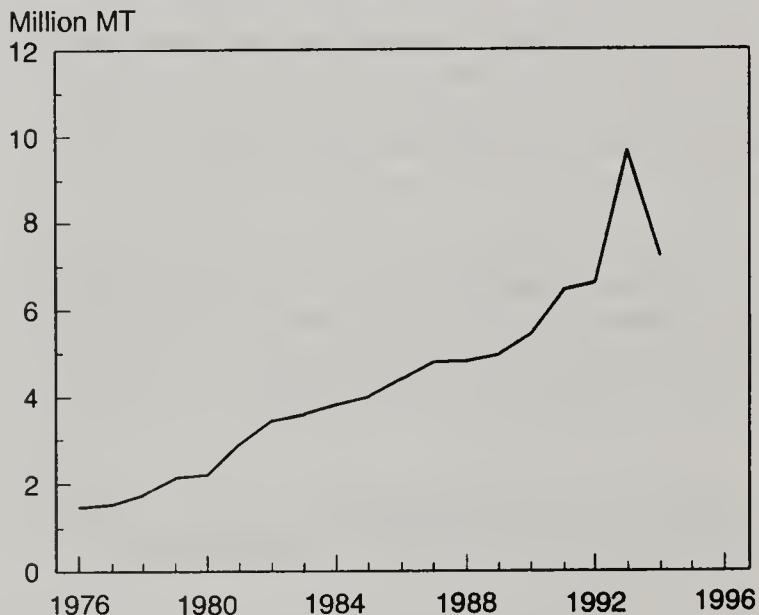
Source: SSB, *China Statistical Yearbook, 1995*.

Figure 21
China's Domestic Soybean Prices Compared with
World Market Prices



Source: World market prices are Rotterdam fob prices. China price data are from *China Price Monthly*, World market prices are from FAS.

Figure 22
China Edible Vegetable Oil Production



Source: *China Statistical Yearbook, 1995*.

increased 14 percent annually. But, from 1988 to 1994, the annual growth rate in urban areas was reduced to 2 percent, and in rural areas the annual increase rate was about 3 percent. The rapid growth in edible oil consumption in the late 1970s and early 1980s was partially the result of fast income growth and overall food shortages. When consumers filled their basic

nutritional requirements and felt secure about their consumption requirements, the annual rate of increase slowed substantially, which suggests that in the future, the increase in household cooking oil consumption will likely not parallel income growth.

The 1995 *China Statistical Yearbook* reported on household income and expenditure surveys conducted in 1994. By ranking the survey results by per capita income, the highest decile household income was more than three times higher than those in the lowest decile, while per capita vegetable oil consumption in the highest decile was only 27 percent higher than in the lowest decile (table 18). Once consumers overcame their fears of food shortages, the demand response for edible oil was linked more closely to price.

Beginning in 1992, government subsidies for urban edible vegetable oil rations were eliminated province by province. Although 1994's high inflation caused some provincial governments to resume subsidies, only a small proportion of China's urban dweller's consumption is covered by this policy. Hence from 1993, edible vegetable oil market prices rose dramatically (figure 21). Even though household edible vegetable oil per capita expenditures increased 65 percent in 1994 from the previous year, as its price went up about 60 percent, per capita cooking oil consumption only increased 4 percent. Thus, given observed 4 to 7 percent annual growth rates in rural and urban per capita income during the last 10 years, the projected annual growth rate for household cooking oil consumption in the next 10 years could be around 3 to 4 percent.

Edible vegetable oil consumed in hotels, work place cafeterias, and restaurants has become increasingly important for direct human oil consumption, and this consumption is closely linked with income growth. With this factor, human direct oil consumption is projected to increase 4 to 5 percent annually.

Manufacturing oil use in food processing industries has become one primary force driving vegetable oil imports. The rapid growth of food processing industries stems from both domestic and export demand. Recently, China imported fast food production equipment, especially instant noodle machinery and joint venture companies have entered China to establish food processing industries. Manufacturing oil consumption likely will increase faster than any other class of oil consumption. The projected annual growth rate for manufacturing use of vegetable oil is from 7 to 10 percent. The dominant position of palm oil in fast food industries likely will continue in the near future, and palm oil imports should increase steadily. In sum, the demand for edible oils (house-

hold, restaurant, and food processing) is projected to increase 5 to 6 percent per year.

China has steadily increased its crushing facilities from both domestic firms and joint venture enterprises. According to 1993's oil production (figure 22), its edible vegetable oil crushing capacity is at 9.6 million tons. Current crushing facilities with construction of new crushing capacity suggest that China will likely import more raw oilseeds in the future. Given the change in consumer preference for quality oil, soybean exports will fall and imports likely will grow faster than other seed imports. China's growing needs for protein meals in feed industries will further affect this trend. The annual growth rate of soybean imports will likely be about 20 percent, while exports will fall 3 percent annually in the next 10 years.

China's decisions to import edible oils are based only partly on supply and demand conditions. Edible oil is an important element in consumer diets, and based on rising incomes, demand for edible vegetable oil should rise steadily. However, we observed serious fluctuations in China's oil imports during the last 10 years. Drastic changes in the central government's import policy —shifts between decentralization and re-centralization of import rights, and changes in state

edible oil stocks subsidy policies, used to cause great changes in total imports. Any new trade policy in regards to vegetable oils in 1996 or in the future may affect China's oil imports or exports.

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China's Centralized Cotton System Struggles Along

China's 1995/96 cotton production rose 9.8 percent to 4.77 million tons. Relatively modest growth in cotton use reduced cotton imports to 610,000 tons, a decline of 31 percent. Higher domestic producer prices stabilized area, while improved weather, crop management, and a shift in area to higher yielding regions reduced the impact of the cotton bollworm infestation on yields. Cotton imports are expected to decline somewhat in 1996/97 as domestic production stabilizes and consumption growth is modest. However, the fiscal condition of China's textile industry has continued to deteriorate, dampening expectations of consumption gains. [W. Hunter Colby (202) 219-0669 and Stephen MacDonald (202) 219-1179]

China's 1995/96 (August/July) cotton imports fell 31 percent to an estimated 610,000 tons due to higher production and modest consumption growth. This follows a 636-percent increase in imports over the previous 2 years. China's 1996/97 cotton trade is expected to remain significant, though it will likely be less than during 1995/96.

China's official plan for 1996/97 calls for 6 million hectares of cotton area and production of 4.5 million tons. This is a 10.7-percent increase for area sown to cotton but a 6-percent decrease in production from 1995/96's area of 5.42 million hectares and production of 4.765 million tons. Given that cotton yields in 1995/96 were among the best ever, yields are not expected to rise in 1996/97. In addition, the State Statistical Bureau's spring survey of farmer planting intentions indicated 1996/97 area will decline 25,000 hectares to 5.46 million. The likely scenario for 1996/97 is for a reduction in both area and yield, resulting in lower production. However, the exact level will depend on two key unknowns in China's cotton sector—weather and the continuing cotton bollworm infestation in the North China Plain.

China's robust import demand of 1994/95, continued during 1995/96, albeit on a smaller scale. Attempting to explain China's import surge over the last couple of years, analysts have noted China's modest domestic output the last 2 years, difficulty in procuring cotton through the state purchase system at the official government price, the siphoning of cotton away from the state procurement and allocation system by black market dealers, the difficulty of moving cotton from surplus to deficit regions, and China's need to replenish usable stocks.

However, the last factor is difficult to reconcile when the little information available concerning China's cotton stocks suggests they are quite plentiful (cotton stock information is still considered a state secret in China). It may be that some portion of those stocks are of such poor quality that they cannot be used for spinning yarn. This remains entirely speculative, however, since so little is actually known about the quantity, much less the quality, of China's cotton stocks.

Government Cotton Price Increase

In March 1995, China announced a government procurement price increase of 29 percent to 14,000 RMB (\$1,624) per ton.

This was up from 10,880 RMB (\$1,262) during 1994/95, though black market cotton prices that year reportedly reached 18,000 (\$2,088) to 21,000 RMB (\$2,436) per ton. The price increase for 1995/96 was an attempt to raise production and to recapture some of the cotton moving outside the state procurement and distribution system. To date there is little indication of a government cotton price increase for the 1996/97 season.

Agriculture officials recently announced that individual provinces will now be responsible for their own cotton supply and consumption. Exceptions to this provincial self-sufficiency policy will be key national textile centers such as Shanghai, Beijing, and Tianjin. These centers of textile production will have cotton supplies guaranteed by the central government, sourced either from cotton surplus provinces (for instance Xinjiang province in the far Northwest) or from imports. The details of this policy are not clear, so the ultimate implications are difficult to predict. However, it is one more sign of the government's reluctance to move towards a more market-oriented system of cotton distribution.

Another policy change recently announced is the restructuring of the government cotton procurement agency, the system of supply and marketing cooperatives (SMC). Reportedly, the system of linked provincial, prefectural, county, and local SMCs will be reformed, with a national-level office formed to oversee all SMC operations. The national-level office will report directly to the State Council. Although still somewhat unclear, it appears that this change will give the central government greater oversight over SMC operations, or in other words, more control over cotton procurement.

Supply Situation Improves in 1995/96

Cotton production in 1995/96 was 4.8 million tons, up 10 percent from the 4.3-million-ton harvest in 1994/95 (table 19). Area in 1995/96 was 5.4 million hectares, a reduction of 2 percent from 1994/95, and significantly below the 6.9-million hectare record of 1984/85 (appendix table 3).

Bollworm infestation continued to be a problem in several of the major producing provinces, most notably Shandong and Henan. Despite continued problems with bollworms, 1995/96 yields rose 12 percent to 879 kilograms per hectare, in part through additional improvements in pest management

Table 19--Provincial cotton production, 1991-95

Province	1991	1992	1993	1994	1995
1,000 tons					
Xinjiang	639	668	680	800	994
Henan	948	659	660	628	770
Jiangsu	557	527	429	464	562
Hubei	491	610	425	450	586
Shandong	1,351	677	410	559	471
Anhui	271	256	260	257	301
Hunan	149	203	211	238	224
Hebei	634	350	192	390	370
Jiangxi	109	148	156	175	119
Shanxi	112	95	70	85	91
All others	414	402	246	204	277
Total	5,675	4,508	3,739	4,250	4,765

Sources: SSB, *China Statistical Yearbook*, various years; and SSB, *China Statistical Summary*, 1996.

techniques. Yet, this was well below the 903 kilogram record yield of 1984/85. Farmers have been unable to maintain fertilizer and pesticide application rates in the face of rapidly rising input costs.

Bollworm eradication and control efforts continued in 1995/96, though pesticide resistance, small plot size, and widespread use of intercropping continue to hinder these efforts. Some innovative low-cost methods to mitigate the effects of the infestation, such as high intensity lights or use of a single row of corn to attract the pests which can then be removed by hand, are becoming more widespread.

Nevertheless, the most effective method of controlling the bollworm will be to coordinate planting and pesticide application schedules among farmers. The extremely close proximity of very small plots allows easy migration by the pest, severely limiting the effectiveness of chemical applications. Although extension and research institute efforts are pushing increased local coordination, changing and coordinating the behavior of large numbers of small farmers will be difficult.

Following extensive government "education" of cadres and cotton officials, state procurement improved in 1995/96. As of February 1996, procurement reached a reported 3.75 million tons (an increase of 17 percent over the previous year). Although an improvement over 1993/94, state procurement in 1994/95 continued to be hindered by farmers holding back cotton for higher future prices, or to divert to black market dealers paying significantly higher prices than official government procurement stations (and to avoid the problem of receiving IOUs rather than cash at the government purchase stations). Much of the cotton purchased on the black market found its way to rural yarn mills rather than the larger state-run mills in the major textile producing regions of Shanghai, Tianjin, and Beijing.

Cotton consumption is expected to rise a modest 3-percent in 1995/96 to 4.5 million tons. On a calendar year basis, yarn production (including cotton yarn, synthetic yarn, and blended yarn) output rose 1.7 percent from 4.895 million tons in 1994

to 4.98 million in 1995. Yarn production rose as cotton supplies were bolstered by significant levels of imports and relatively plentiful domestic production.

Cotton imports fell in 1995/96, though levels continued to be relatively high on a historical basis. Imports were driven by problems with procurement, allocation, and distribution of domestic cotton production, as well as additional gains in domestic and export demand for textiles and apparel. Imports are estimated at 610,000 tons, down from 884,000 in 1994/95. Imports for August through March of 1995/96 totalled 432,064 tons. Exports for the same period were 1,042 tons, with total exports forecast at 5,000 tons, substantially below the previous year. During the previous 13 years, China had always managed to maintain at least modest levels of cotton exports, in part to earn needed foreign exchange.

Rising Net Imports Likely in the Long Term

China's long-term cotton trade outlook is for gradually rising imports and consistent, but modest, exports. Cotton production is expected to increase gradually, but fall short of the expected growth in domestic and export demand for textiles. Although yields in China still have room to grow, rising domestic input prices and a relatively low government-set purchase price will limit yield increases. Accordingly, assuming normal weather, China is expected to become a consistent net cotton importer, though occasional years of net exports are still possible during the 1990's if optimal weather and policy conditions coincide (appendix table 12).

The textile industry accounts for roughly 30 percent of China's total export earnings. Officials in China indicate that the importance of the textile sector to the national economy means that the government will likely maintain more control over cotton than other agricultural commodities. As one case in point, recent problems with government procurement resulted in a profusion of edicts demanding strict adherence to government procedures for cotton marketing, grading, pricing, and distribution.

Over the next decade, China's cotton production and consumption are expected to increase, but with domestic and export demand for cotton fiber rising more rapidly, China will likely become a relatively consistent net importer by the late 1990's. However, if China is unable to continue improving its pest management techniques, particularly with regards to the bollworm infestation, the shift to a permanent net import position may already have taken place. China's cotton imports are expected to reach nearly 835,000 tons by the year 2005, though given the most recent domestic production and import trends, China may well need steady imports of this magnitude even sooner. Exports are expected to remain around a low, but relatively stable, 95,000 tons.

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China Brings Volatility to the World Sugar Market

A decline in wholesale prices for refined sugar and an increased sugar production in 1995/96 prompted a decline in sugar imports to 2.5 million tons. This follows a surge in imports from 0.9 million tons in 1993/94 to 3.5 million in 1994/95—an increase of 300 percent. The long-term trend in China is for growing imports of raw sugar to meet income-driven increases in consumption. [William Lin (202) 219-0850 and Hunter Colby (202) 219-0669]

Following a surge of sugar imports to 3.5 million metric tons in 1994/95, up from 0.9 million in 1993/94, China's sugar imports for 1995/96 are expected to decline to 2.5 million tons. First, the decline in wholesale prices for refined sugar from last year's high of 4,800 Rmb/mt to 4,100 Rmb/mt this year, narrowed the price differential between wholesale prices of refined sugar in domestic markets and import prices of raw sugar which are determined on the world market. Secondly, China's 1995/96 sugar production is estimated to be up nearly 15 percent from last year because of an increase in procurement prices paid to producers—280 Rmb/mt for sugarcane and 320 Rmb/mt for sugarbeets—and good weather (1994/95 drought in Guangxi ended this year). Thirdly, starting from December 1995, tolling—importing raw sugar without paying import duties for processing and then re-exporting—has been temporarily banned by the government of China. During 1995, tolling totaled about 1.5 million tons—0.5 million “real” tolling and 1.0 million smuggled tolling. This institutional factor will continue to play an important role in China's sugar imports in the future.

China's sugar imports primarily come from Thailand, Cuba, Australia, Brazil, and Guatemala. In 1995, imports from Thailand and Cuba altogether accounted for about two-thirds of total imports. The bulk of raw sugar imports were processed for use in domestic markets while a small proportion were processed and then re-exported.

Over the next few years, China's sugar net imports are expected to be stabilized around 1 to 2 million tons. It will become more difficult to achieve the national self-sufficiency goal because sugar crops' returns lag behind competing crops. In the long run, China will remain to be a net importer, with imports to continue rising.

Declining Prices and Increased Production of Sugar Reduces 1995/96 Imports

Despite increased total refined sugar consumption, larger beginning stocks and increased sugar production of nearly 1 million tons in 1995/96 caused wholesale prices of refined sugar to decline (table 20). The larger beginning stocks reflected a large amount of smuggling in 1994/95. In addition, to compete for the refining market, some sugar mills were forced to lower their sugar prices so that they could pay cane and beet producers in cash instead of IOU's. As a result, wholesale prices of refined sugar in 1995/96 are expected to decline by 15 percent, and sugar imports are likely to decline. Total sugar exports are expected to increase to about 700,000 tons.

Sugarcane production contributed about 80 percent of China's sugar production while sugarbeet production accounted for the remaining 20 percent. In 1995/96, sugarcane production for sugar is expected to rise 6 percent to about 64 million tons. Similarly, sugarbeet production is estimated to have reached about 13.5 million tons, an increase of 9 percent over the previous year as good weather significantly improved yields.

Cane area continues to decline in the traditional producing provinces of Guangdong and Fujian and expand in Guangxi and Yunnan, further to the west (table 21). In 1995/96, producers in Guangxi planted 453,300 hectares to sugarcane.

Table 20--China's refined sugar statistics

Year	1993/94	1994/95	1995/96	1996/97
1,000 tons, raw value				
Production	6,505	5,900	6,700	6,600
Consumption	6,600	8,000	8,250	8,500
Imports	874	3,500	2,500	2,200
Exports	1,114	414	700	400
Ending stocks	570	1,556	1,806	1,706

Source: USDA, PS&D.

Table 21--China's sugar crop statistics

Year	Unit	1993/94	1994/95	1995/96	1996/97
Sugarbeet:					
Production ¹					
Area	1,000 MT	11,938	12,406	13,470	12,500
Yield	ha	598	575	685	650
Sugar	MT/ha	20.0	21.6	19.7	19.2
Recovery rate	Percent	1,125	1,000	1,300	1,200
Recovery rate					
Sugarcane:					
Production ¹					
Area	1,000 ha	63,553	60,300	63,720	64,000
Yield	ha	1,088	1,035	1,015	1,050
Sugar	MT/ha	58.4	58.3	62.8	61.0
Recovery rate	Percent	5,380	4,900	5,400	5,400
Recovery rate					

Source: USDA, PS&D.

¹ USDA production, area, and yield numbers for 1993/94-1995/96 differ from those published in SSB, *China Statistical Abstract*, 1996. For example, sugarbeet and sugarcane production, according to the latter source are given below:

Sugarbeet	12,048	12,526	13,984
Sugarcane	64,194	60,927	65,417

The government's 5-Year Plan (1996-2000) calls for expanding that area to 466,700 hectares by the year 2000. Similarly, the plan calls for expanding Yunnan's cane area to more than 230,000 hectares by the year 2010, up from 175,000 hectares planted in 1995/96. Sugarcane production continues to yield returns lower than grains, oilseeds, fruits, and vegetables. Beet area continues to face increased pressure in the traditional producing area of Heilongjiang, Jilin, and Inner Mongolia. In Heilongjiang, corn is the primary competing crop which typically yields returns twice as large as sugarbeets. Xinjiang, however, continued to expand beet area as the provincial government increased price support and input subsidies to beet producers in recent years. However, the long-term forecast for both cane and beet area is increasing competition from more profitable crops—particularly vegetables and fruits in the south and corn and soybeans in the north and northeast.

Higher Producer Prices and Lower Mill Prices Caught Sugar Mills in Cost-Price Squeeze

The increases in sugarcane production and sugarbeet production in 1995/96 was caused by higher procurement prices paid to producers and good weather. In 1995/96, the State Planning Commission raised guidance prices for sugarcane, sugarbeets, and refined sugar. However, actual procurement prices, which were based on market conditions, differ from guidance prices. Actual procurement prices paid to producers in 1995/96 averaged 280 Rmb/mt for sugarcane, up 70 Rmb/mt over the last year. In Guangxi, actual procurement prices paid to producers during 1995/96 ranged between 230 Rmb and 300 Rmb, with an average of 256 Rmb/mt, which was higher than the 230 Rmb/mt guidance price set by the State Planning Commission. In addition, fertilizer prices paid by producers were about two-thirds of the market price, since the remaining one-third was subsidized by sugar mills. Similarly, actual procurement prices paid to producers averaged 320 Rmb/mt nationwide for beets, up 50 Rmb/mt. The increase in procurement prices for beets were even more pronounced in Heilongjiang—up 50 percent.

While actual procurement prices paid to producers were up, mill (ex-factory) prices of refined sugar declined in 1995/96, and were lower than guidance prices set by the State Planning Commission. Mill prices for refined cane sugar averaged 4,100 Rmb/mt, down from 4,700 Rmb/mt last year, a decrease of 13 percent. Similarly, mill prices for refined beet sugar averaged 4,000 Rmb/mt, down from 5,000 Rmb/mt last year, a decrease of 17 percent. Despite the guidance price of 4,500 Rmb/mt for refined sugar set by the Commission, mill prices received by sugar millers turned out to be 8 to 11 percent lower. As a result, many sugar mills ran into serious cash flow problems because they not only have to pay higher procurement prices to producers, but also receive lower mill prices for refined sugar. Some sugar mills are reluctant to sell their sugar because they cannot break even at the current low mill price and, as a result, accumulated high stocks and were forced to pay producers by IOU's. At least a third of the sugarcane in Guangxi and the sugarbeets in Heilongjiang were procured with IOU's. The government adopts various measures to alleviate these problems, such as urging commercial banks to provide loans to sugar mills and increasing

purCHASES for government stocks; however, these actions were not adequate to raise refined sugar prices.

Per Capita Sugar Consumption Remains Low

China's per capita sugar consumption averaged 6.2 kilograms, refined value, in 1995/96. This level of per capita consumption is much lower than those in other countries: 18.4 kilograms in Japan, 21.6 kilograms in Republic of Korea, 24.9 kilograms in Thailand, and 29.7 kilograms in the United States (figure 23).

The low level of per capita consumption in China has a lot to do with traditional eating habits. Per capita sugar consumption in the north, in general, is lower than in the south because the northerners tend to eat salty rather than sweet foods. In rural areas, the per capita consumption level is even lower than their urban counterparts, only 1.34 kilograms.

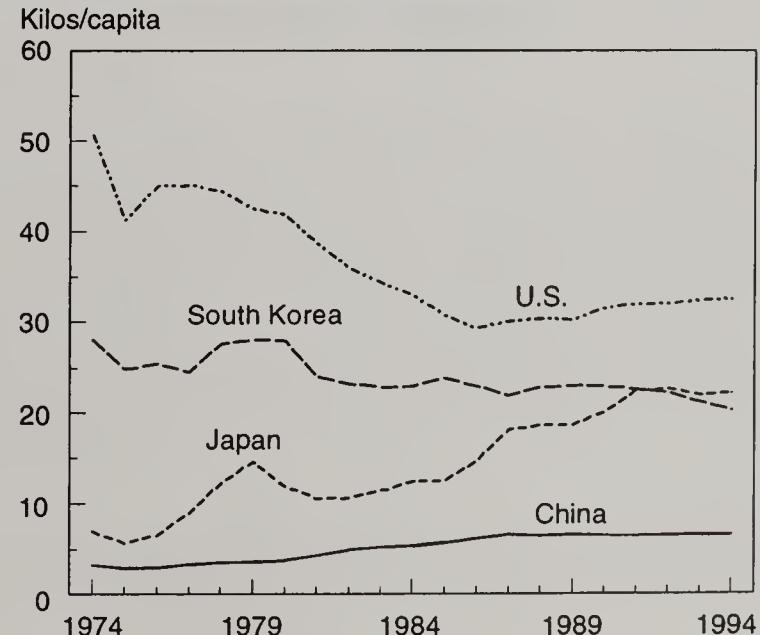
China's low per capita consumption of sugar also is related to its low per capita GDP level. In 1994, per capita GDP was less than \$476 (in \$1990), compared with \$25,149 in Japan, \$7,491 in South Korea, \$1,981 in Thailand, and \$23,213 in the United States. As per capita GDP in China continues to grow rapidly, sugar consumption is expected to expand.

Finally, China's low per capita sugar consumption is partly caused by the replacement of sugar with saccharin, a high-intensity sweetener which is 300 times as sweet as sugar. The amount of saccharin consumed as a sweetener in China is estimated at 2,000 to 4,000 tons per year in recent years. At this level of consumption, saccharine replaced between 600,000 and 1.2 million tons of sugar.

Long-Term Supply and Demand Projections

Projecting out more than 5 years, China is expected to remain as a net importer and will import growing amounts of raw sugar to fill the shortfall of domestic production.

**Figure 23
Per Capita Sugar Consumption, 1974-94**



Source: USDA, ERS database.

Increased competition from other crops is expected to reduce area in traditional growing regions. Area planted to sugarcane in Guangdong declined nearly 30 percent over the last 3 years, from 321,700 hectares in 1992 to 230,200 hectares in 1995. In addition, sugar yield also declined from 73.9 mt/ha to 69.1 mt/ha. Much of the sugar land was diverted to planting of vegetables, fruits, and grains. Similarly, due to competition from corn, area planted to sugarbeets in Heilongjiang also slightly declined from 331,800 hectares to 328,500 hectares. Net returns for corn averaged about 30 Rmb/ha, which is double the 13 Rmb/ha average net return for sugarbeets. Despite the guidance price set for sugar crops, producers frequently found procurement prices for grains to be more profitable. In addition, procurement prices for grains are guaranteed by the central government, which is more assuring than procurement prices offered by sugar mills. In cases where sugar mills are unable to pay producers in cash, payment with IOU's dampen producers' intentions to grow sugar crops.

In addition, because of sugar crops' relatively low returns, growth of area planted to sugar crops in expanding regions

may be limited. For example, the government's 5-Year Plan in Guangxi calls for an expansion of sugarcane area from 453,300 hectares in 1995 to 466,700 hectares by the year 2000. Even if the government's plan is fulfilled, the annual growth rate of sugarcane area would amount to only 0.5 percent. The increase in sugarcane yields has an annual rate of about 1 to 2 percent. Although area is expected to continue to rise in the newer, central growing regions, available supply is not expected to keep pace with consumption growth.

China's sugar consumption over the last few years averaged an annual growth rate of nearly 2.5 percent. Much of this expansion was attributed to China's population growth, which is about 1.4 percent. Some analysts believe the growth rate could be as high as 8 percent between now and 2000. In addition, ongoing income growth will likely continue to increase consumer demand for sugar-based processed foods, beverages, snacks, and desserts. Although a concerted (and expensive) central government effort to support domestic production could slow growth in imports, China will likely still need to import growing amounts of raw sugar.

China's Grain Stocks: Background and Analytical Issues

In fall 1992, an academician at the Chinese Academy of Social Sciences reported that China's grain stocks for 1990 were 491 million tons. The new estimate raised several important issues: How do China's statisticians define stocks? How do stocks relate to grain imports and exports. Why does China import grain when it has large stocks? On-farm grain stocks are very large. Why do farmers hold such large stocks? What factors influence stock holding? In the coming decades on-farm stocks likely will decrease as local grain markets become more efficient, transportation lines are improved, and as financial markets become established. Grain coming out of stocks could well temporarily affect China's grain import requirements. [Frederick W. Crook (202) 219-0002]

Introduction

This paper examines the roots of China's legacy of storing grain which goes back more than 2,000 years. Clearly China has had long experience in building granaries and organizing bureaucracies to manage grain storage and distribution. A second section reviews entities holding stocks in the 1990s. Currently, China does not release grain stock numbers. But household surveys indicating per capita holdings were used to indicate the size of on-farm stocks. Especially interesting is the fact that farm families were encouraged to store grain long before the land contract system in the 1980s gave households considerable power to control their own grain resources. The third section assesses the relationships between grain stocks and production, consumption, marketing, and trade. How do stocks relate to grain imports and exports—for example why did China have net grain imports of over 10 million tons in 1988 when stocks were reported to be 380 million tons? More recently, do large grain imports in 1995 mean that stocks have been drawn down?

China's statistical authorities define grain as wheat, rice (paddy basis), coarse grains, soybeans, potatoes (grain-weight equivalent using a 1:5 ratio of grain to raw weight), and pulses. USDA stock numbers include wheat, rice, coarse grains, and soybeans. The Ministry of Internal Trade, Grain Bureau, functions on an April 1st to a March 31st year. There is importance to the definition because usually the ending year date denotes the quantity of grain in bins just before the new crop is harvested. Farmers in tropical Guangdong and Hainan provinces begin harvesting their first rice crop after April 1st, which means that crop is the first grain crop reaped in the whole country. Presumably China's authorities defined their grain year from April 1 through March 31 to segregate old from new crop grains. For grain stored by the state, ending stocks are defined as the quantity of grain in bins at the end of the grain year or March 31st(1). Beginning and ending dates for grain stored by farmers have not been specified, but could well be January/December because stock data are collected through rural household survey teams which normally operate on a January through December year.

Grain Storage Experience of 2000 Years

Contemporary grain storage programs in China rest on 2,000 years of tradition. From this long tradition current government leaders feel they have a civic responsibility to store grain. Likewise, because of this cultural heritage, citizens believe grain storage is a proper function of good government. In periods of stability, it is China's historical norm to hold grain stocks.

During the late Qing period (1644-1911), domestic and foreign problems diverted vital bureaucratic energy from running their very complex granary system. Supplies in granaries were commandeered by Qing officials to maintain a military force to contend with various rebellions (White Lotus and Taiping) and foreign incursions. From 1781 to 1850, the quantity of grain in stocks declined. The Qing state recovered, but the Qing granary system did not return to its former structure. Even during the steady decline in the system, however, the Qing state still had the capacity to mobilize, transport, and distribute large quantities of grain around the empire to regulate markets and provide welfare services for some of its citizens (4).

Grain Stock Holders in the Mid-1990s

State Stocks

In 1990, the State Council established the State Administration for Grain Reserves (SAGR). The stocks they control are referred to as (*houbei*—reserves) or long term or strategic stocks. The Ministry of Finance provides loans and subsidies for these stocks. They rotate their stocks on a 1- to-2 year basis. The old grain is moved out to consumers and the new grain is placed in stocks. SAGR officials reported that they do not lose much grain from spoilage or pest damage. Their biggest losses stem from weight loss as the grain in storage bins dries out.

At provincial, prefectural, and county levels, these entities still refer to themselves as the Grain Bureau, but in fact they report to the SAGR.

Commercial Stocks

Commercial grain companies within the Grain Bureau (i.e., they are government-owned businesses) have to provide for their own financing of commercial grain stocks. The current policy seems to be that whoever purchases and stores grain, that entity arranges finances for the grain storage, and has control over its use. For example, the city of Dalian, Liaoning province allocated funds to stock up grain (wheat, rice, corn, and soybeans) such that the city kept a 6- to-8 month stock of grain to meet consumption requirements.

Mill and Private Grain Stocks

In the 1990s, the Grain Bureau owned feed and flour mills and held grain stocks to support their milling operations. Joint ventures and private millers also held grain stocks. Some private grain firms also held stocks (5).

On-Farm Grain Stocks

The quantity of grain in on-farm stocks were estimated by USDA based on a number of State Statistical Bureau sources,

including data from rural income and expenditure surveys. Notes on survey procedures are ambiguous with regard to the precise timing of the "yearend" date. The Ministry of Internal Trade, Grain Bureau, functions on an April 1st to a March 31st year which includes this concept. But we think the rural surveys are completed on a calendar year basis. A calendar year stock number would give higher stock numbers because many fall grain crops are harvested late in the year—which means that bins are full of new grain with 7 or 8 months to go before any new crop grain is harvested (figure A-1).

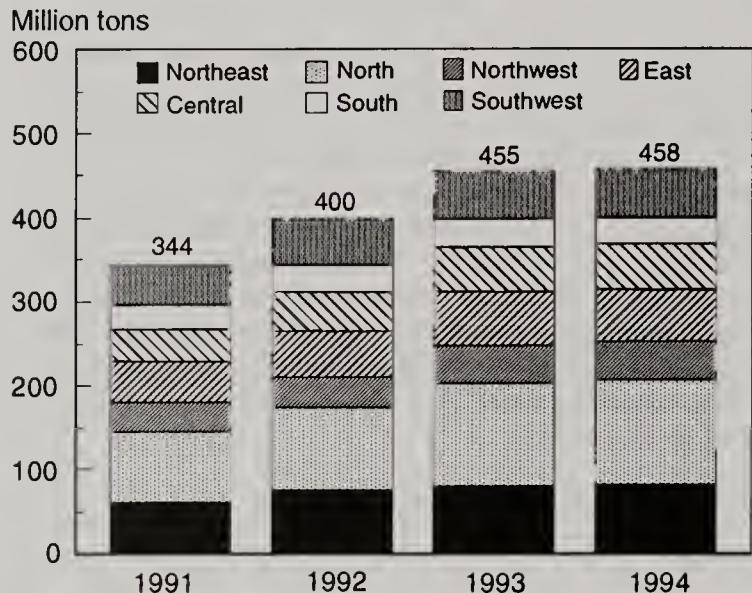
In general, per capita rural stocks are much larger in north than south China. For example, in 1991, Jilin province had a high of 1,427 kilos per capita in Jilin province and Hainan had a low of 161 kilos in the south. Farmers in north China keep more stocks because the probability of crop failure there is much higher. The altitude is higher, the climate is cooler, the growing season is shorter, and climatic conditions are better for grain storage. In contrast, in the south, altitudes are lower, the climate is warmer and precipitation greater, and the growing season is longer which means that farmers can grow more than one grain crop a year and the probability of crop failure is lower. Also, climatic conditions are less favorable for grain storage in south China.

On-farm per capita stocks rose from 357 kilos in 1990 to 550 kilos in 1995 (table A-1). There is a difference between the ending stocks and beginning stocks for some years. At the moment we are at a loss to explain the difference except to note that the data comes from the surveys which typically drop a certain number of households out of their sample frame each year and add additional households. Under these circumstances it would be odd if ending stocks were exactly the same as beginning ones.

Stocks for all of rural China for 1991 are estimated at 344 million tons, which is the result of multiplying appropriate provincial agricultural population numbers by the average provincial per capita stock estimate. This large stock number supports the 491-million-ton stock number reported from China in late 1992 (table A-2).

If one makes some assumptions about the proportion of actual carryover stocks for the various provinces, one can then gain a clearer picture of the size of actual carryover stocks in the system. Carryover stocks are defined as the quantity of grain in a bin just before a new grain crop is harvested. For provinces in the northeast and northwest, we assumed that 60 percent of the reported stock numbers were actual carryover stocks because farmers face greater potentials for crop failures (early frosts and drought). For provinces in north, east, and central China, we assumed that 40 percent of the reported stock numbers were actual carryover stock numbers because farmers face less risk of crop failure and because markets and transportation systems are better developed. For provinces in south and southwest China we assumed that 20 percent of the reported stock numbers were actual carryover stocks because farmers can raise two to three grain crops a year and because the probabilities of crop failure is much less than in the north.

Figure A-1
On-Farm Grain Stocks



Source: ERS estimates based on agricultural population and survey results.

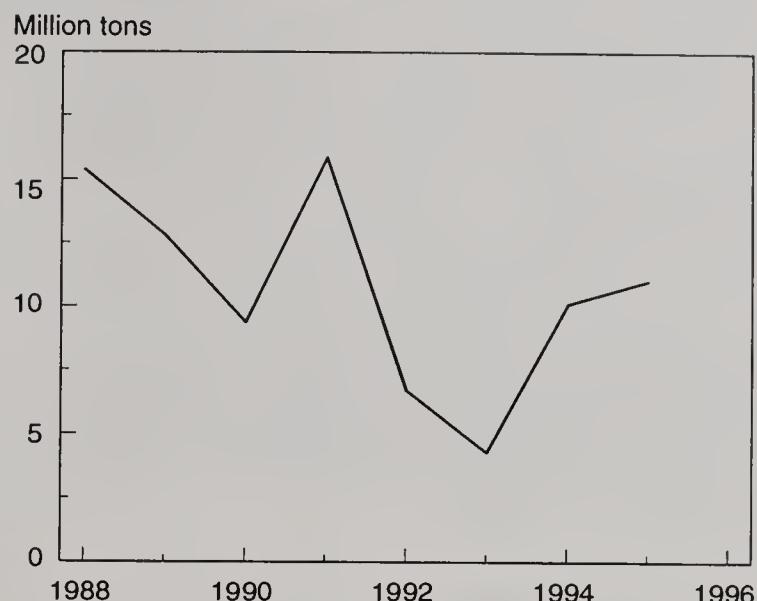
Table A-1--National average per capita on-farm stocks

Year	Beginning stocks	Ending stocks	Kilograms
1991	357	406	
1992	387	457	
1993	na	500	
1994	488	542	
1995	na	550	

Not USDA estimates. Sources: 2, and Professor Guo Shu-tian, "Grain Market Reform in China and Its Implications, Sep. 16-19, 1995, East-West Center, Honolulu, Hawaii. FBIS, No. 222, p. 56, 1995.

By applying these percentages to the appropriate province, the total carryover on-farm grain stocks were 14 million tons. Of 491 million tons of stocks, 344 could be classified as on-farm stocks (of which 141 million tons can be categorized as true carryover stocks and 203 million tons as grain stored for insurance, store of wealth, etc.); 120 million tons as state stocks; 20 million tons of Grain Bureau stocks; and 7 million tons of private stocks.

Figure A-2
China's Wheat Imports



Source: USDA, Production, Supply, and Demand, Database.

Effect of Stocks on Foreign Grain Trade

The buildup of stocks over the 1980s, along with Beijing's policy to disband the centrally planned grain purchase and distribution system, to transform various parts of the Grain Bureau into separate enterprises competing against each other in open grain markets, and to cut subsidies supporting locally held grain stocks, affected grain imports and exports in 1992-93.

In 1991-92 the central government decided to limit the quantity of stocks that it was willing to subsidize, which forced local grain bureaus to recalculate the benefits and costs of holding their own stocks. In 1992, units of the Grain Bureau found that to store 1 ton of grain for 1 year cost them 140 RMB (US\$25). Many local Grain Bureaus found that their stock holdings were unprofitable and took measures to reduce stocks. With abundant wheat supplies, flour mills requested that CEROILS purchase less wheat from foreign countries (figure A-2). Wheat imports fell from 15.9 million tons in 1991/92 to 6.7 million in 1992/93 and 4.3 million in 1993/94 before rebounding to 10 million tons in 1994/95. In 1993/94, China was able to ship 150,000 tons of feed wheat to South Korea.

Because of changes in financial subsidies, Grain Bureaus released rice stocks into markets. China's rice exports rose from 933,000 tons in 1991/92, to 1.4 million tons in 1992/93, and 1.5 million tons in 1993/94, before falling to 250,000 tons in 1994/95. Some of the released stocks were low-quality rice and aging grains which were dumped into the distribution system to supply China's demand for feed. With domestic demand for feed grains partially filled by reducing domestic stocks, China's grain traders could continue to ship corn into the international market. Partially because of changes in stock policies, China's corn exports increased from 10 million tons in 1991/92, to 12.5 million in 1992/93, and 11.6 million in 1993/94 before crashing to 1.5 million tons in 1994/95.

The lesson which can be learned from this experience is that analysts interested in international grain trade should pay

Table A-2--Estimated on-farm grain stocks, by province, 1991-94

Province	1991	1992	1993	1994
Million tons				
Northeast	61	76	81	83
Heilongjiang	21	26	32	37
Liaoning	19	30	25	23
Jilin	21	19	24	22
North	86	98	123	125
Shandong	30	31	37	38
Hebei	20	22	27	32
Beijing	2	2	3	3
Tianjin	2	3	3	3
Henan	21	26	37	32
Shanxi	11	13	16	18
Northwest	34	38	45	45
Shaanxi	9	10	13	13
Gansu	7	7	8	8
Nei Mongol	11	13	15	15
Ningxia	2	2	2	2
Xinjiang	3	4	5	6
Qinghai	1	1	1	1
East	48	54	65	63
Zhejiang	14	14	16	17
Jiangsu	20	23	29	25
Shanghai	2	2	9	1
Anhui	12	16	19	21
Central	40	47	51	54
Hubei	12	16	18	19
Hunan	17	18	20	20
Jiangxi	11	13	14	15
South	29	32	33	32
Guangdong	14	15	14	14
Guangxi	9	10	11	11
Fujian	6	7	8	7
Hainan	1	1	1	2
Southwest	48	55	57	56
Sichuan	29	36	38	36
Guizhou	7	7	7	8
Yunnan	10	11	10	11
Xizang	2	1	1	2
National	344	400	455	458

Sources: ERS estimates based on agricultural population data from Ministry of Agriculture, *Agricultural Yearbooks, 1992-1995*, and survey results.

close attention to changes in China's domestic grain management and financial practices.

With Large Stocks, Why Import Grain?

From 1986 to 1990, grain stocks averaged 397 million tons and in the same period grain imports averaged 13.7 million tons a year. Why would China's leaders import grain when stocks were so large?

First, one should understand China's grain management policies. As noted above, China's leaders have long had a tradition of grain storage to stabilize markets and to use reserves to combat natural disasters and for strategic considerations. China's leaders could well import some grains to meet largely urban requirements rather than drawdown stocks. Imports would improve the variety and quality of grain products available for urban residents.

Second, one should consider the composition of China's grain stocks. Presumably a large portion of the total stock number is composed of on-farm stocks. In the 1980s and early 1990s, farm households probably had a bias against selling off their grain stocks (even if prices rose sharply). For farm families, grain stocks provided insurance against inflation, illness, death, poor harvests, and disruptions in normal market supplies because of policy adjustments and because of poor transportation and communication systems. From the point of view of grain managers in urban areas, the fact that farmers were holding large grain stocks was of little assistance when they needed wheat and rice to satisfy urban requirements. If urban wheat demand exceeded domestic supplies, the importing of wheat compared favorably with options such as squeezing more wheat out of government controlled stocks, and offering higher prices for domestic wheat.

Benefits/Costs of China's Grain Storage Program

There are substantial benefits for holding grain stocks in China as in many Asian countries. Grain stocks provide a cushion of food security against domestic crop failures. Stocks can also be used as a buffer to dampen disruptions in domestic and international grain markets. China has 1.2 billion consumers who have a cultural heritage which sustains grain storage in part to maintain social order.

There are also substantial costs. Grain is a perishable product such that there are physical losses and deterioration in quality the longer the grain is stored and the more it is handled. Some grain is lost through water, insect, and mildew damage. Some kernels are damaged each time grain is moved from one bin to another. Bins are costly to build and maintain. There are variable costs associated with managing the grain stocks—handling, fumigating, drying, and guarding stocks. Finally, there is the financial cost of holding grain stocks.

The Grain Bureau reported in 1992 that it cost them 140 Renminbi (RMB) to store a ton of grain for 1 year. The free market price for a ton of wheat in 1992 was 612 RMB. After 1 year the net value of the ton of wheat decreased by 23 percent.

Assuming that non-farm stocks were 147 million tons in 1991 and that the storage costs were 140 RMB per ton, the storage costs then were 20.58 billion RMB. Total government revenues in 1991 were 331.3 billion RMB. This means that 6.2 percent of total government revenues are used to pay for non-on-farm grain stocks for 1 year.

A number of forces could reduce China's grain stocks in the coming decades. First, a change in the land tenure system could encourage farmers to reduce grain stocks. At present, farmers do not own their land. Currently, the life cycle of saving strategy does not operate fully in China. Farmers cannot invest in their land, and then recoup their investment when they retire and cannot work anymore. The development of an effective social security system would help reduce stocks. Second, the development of financial markets would have a tendency to reduce on-farm stocks. Farmers currently hold grain because financial markets have not been well developed. If they could store wealth in stocks, bonds, savings accounts, or in gold, then they would not have to hold so much grain.

Third, farmers hold large grain stocks because they cannot rely on grain markets to supply them with grain when there is a crop disaster, a disruption in the transportation system, and when there are political disturbances. A well functioning grain market, and an improvement in the transportation and communication systems will work to reduce stock holding.

What is not likely to change for several decades is the attitudes of farmers. The fear of famine is deeply embedded in the memories of China's citizens. Older citizens suffered greatly before 1949 and nearly all adult citizens can remember the hunger pains resulting from food deficits during the Great Leap Forward (1958-1961).

Presumably one of the major driving forces behind the interest in China's grain stocks is that if one knew what the supply and demand conditions were, stock numbers and changes in stock numbers would provide important tools for estimating grain imports and exports. While this paradigm may work well for some countries, there are several reasons why it is not likely to work well for China. First, the publication of total stock numbers is not sufficient. China does not import "total grain"—rather it imports wheat, corn, rice, and barley and therefore the most useful stock numbers would be by grain type. Second, the publication of total stock numbers does not reveal much about which entities actually holds the stocks or where the stocks are stored. The publication of data on wheat stocks held by farmers who are not likely to give them up is not as valuable as the wheat stock levels in urban Grain Bureaus who have a mandate to supply flour to urban residents.

What will be the effect of these stock reductions? The reduction of non-farm and on-farm stocks will temporarily make additional grains available in domestic markets and thereby reduce requirements to import grains. If stock reductions occur gradually through time, the effect on international grain markets likely will not be great. The rapid reduction of stock levels likely would shock international grain

markets. These matters certainly will deserve attention in the next few decades.

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The Development of China's Vegetable Markets

In the past 20 years, revolutionary changes occurred in China's rural marketing system which shifted from centralized marketing where government institutions purchased, transported, stored, processed, and retailed food products mostly for urban consumption to greater use of open markets. The number of open markets proliferated, and the quantity of goods moving through these markets expanded rapidly. China already is a major participant in world vegetable markets and likely will become a fierce competitor in the coming decades as it begins to improve links between farm gate and export docks.
[Frederick W. Crook (202) 219-0002]

Introduction

The first half of this article deals with the development of domestic vegetable markets. Vegetable market developments before 1949 are described briefly. As central planning took root, government institutions were organized to transfer vegetables from communes to urban consumers. Open markets were an integral part of the rural reforms initiated in the early 1980s. What role have these markets played in vegetable marketing? The article notes important changes in vegetable consumption patterns during the reform period. The second half of the article examines China's marketing of vegetables in foreign trade. The article describes and analyzes China's foreign vegetable trade with regard to the size and destination of exports. As incomes rise, phyto-sanitary barriers are resolved, internal transportation, cold storage, packaging, and processing improve, what is the potential for China to export vegetables and what is the potential for U.S. vegetable exports to China?

This report is based on interviews with central government, provincial, and vegetable market officials in 1995 and published materials provided by these officials, including statistical data published in provincial statistical yearbooks.

China's Domestic Vegetable Markets

China's Vegetable Markets

Over the past half century, many changes have occurred in China's vegetable markets. In pre-1949 China, vegetable producers were farm households who owned their own land or rented their land from local landlords. They responded to market conditions to supply vegetables to local periodic markets for rural and urban consumers. Traditional economic (self-sufficiency) factors also pushed these farmers to produce vegetables for self-consumption.

By 1958, most farm families were mobilized into economic collectives (communes). Farm families produced vegetables on their own private plots for their own consumption. Free market operations were limited and the state organized specialized vegetable production units (production teams) on the outskirts of urban areas. The Ministry of Commerce's Second Bureau formed state-owned vegetable companies to purchase, transport, store, and retail vegetables to urban residents.

China's Vegetables Defined

Leafy vegetables:

Bai-cai, Da bai-cai, cabbage, spinach, cauliflower, rape, mustard greens, and broccoli.

Roots and stems:

Irish potatoes*, sweet potatoes*, yams, carrots, celery, beets, radish, kohlrabi, turnips, taro, onions, leeks, and garlic.

Fruiting crops:

Sweet corn, peppers, soybeans, many varieties of beans, cucumbers, peppers, eggplant, melons, squash, and tomatoes.

* Potatoes are often considered a grain crop in China, but in fact some are consumed as vegetables.

During the Great Leap Forward, free markets in both rural and urban areas were closed. State-owned vegetable companies performed wholesale and retail functions to bring vegetable supplies to urban residents.

By the early 1980s, local rural free markets were re-opened and began to provide vegetables to town residents in rural areas and to farm families. Production teams produced vegetables for state-owned vegetable companies until teams were disbanded after 1984. Farm families and rural economic cooperatives raised vegetables for their own consumption, and for the local rural open markets. Direct marketing began as farm families were permitted to bring their produce to urban areas for direct sales. Families and cooperatives also produced vegetables for state-owned vegetable companies which continued to act as wholesalers and retailers. After 1985, however, the amount of vegetables moving through open markets increased. By 1995, perhaps 80 percent of vegetables marketed in the country went through local open markets while the remaining 20 percent passed through state-owned channels.

Open Markets Increase Dramatically

Between 1979 and 1994, the number of rural open markets nearly doubled from 36,767 to 66,580 (figure B-1). These markets handled a wide variety of agricultural products, including vegetables and manufactured goods. The total value of goods moving through these markets increased from 17 RMB billion in 1979 to 441 RMB billion in 1994. The increase in open market activity in urban areas was even more rapid, rising from 2,226 markets in 1979 to 17,880 in 1994. The value of goods moving through those markets increased from 1.2 RMB billion in 1979 to 456 RMB billion in 1994.

Vegetable output rose dramatically with the beginning of reforms in 1979. Area sown to vegetables rose from 3.3

million hectares in 1978 to 8.9 million hectares in 1994. There was a commensurate rise in production with vegetable output (excluding melons) reaching 166 million tons in 1994. The growth of open markets effectively communicated consumer demand for vegetables to farmers, and farmers responded. Vegetable output rose because of rising per capita incomes and because old marketing mechanisms failed to link producers with consumer demand.

Since 1979, the proportion of vegetables marketed through government-owned vegetable companies decreased sharply while the proportion of product moving through open markets increased dramatically. For example, vegetable sales by the Anhui Vegetable Company fell by two-thirds from 85,000 tons in 1985 to 30,000 tons in 1994 (figure B-2).

On the other hand, open markets such as the Dazhongxi market in Beijing (one of five major vegetable markets in the city) had a dramatic increase in sale of vegetables, which rose from 13,300 tons in 1986 to 500,000 tons in 1994.

Clearly a large proportion of vegetables are now being marketed both through open wholesale and retail markets. Compared with a decade ago, farmers are producing more vegetables and are earning better returns from their efforts. Rural and urban consumers also are better off than before. More vegetables are available than a decade ago, they are available for a longer period of time, and there is more variety. Profit motives have encouraged farmers to plant improved vegetable varieties. Producers have responded to market incentives by investing in greenhouse technology which has made it profitable for farmers to deliver product to markets earlier and later than before. Also entrepreneurs have found it profitable to transport vegetables from more southern producing provinces to consuming northern provinces.

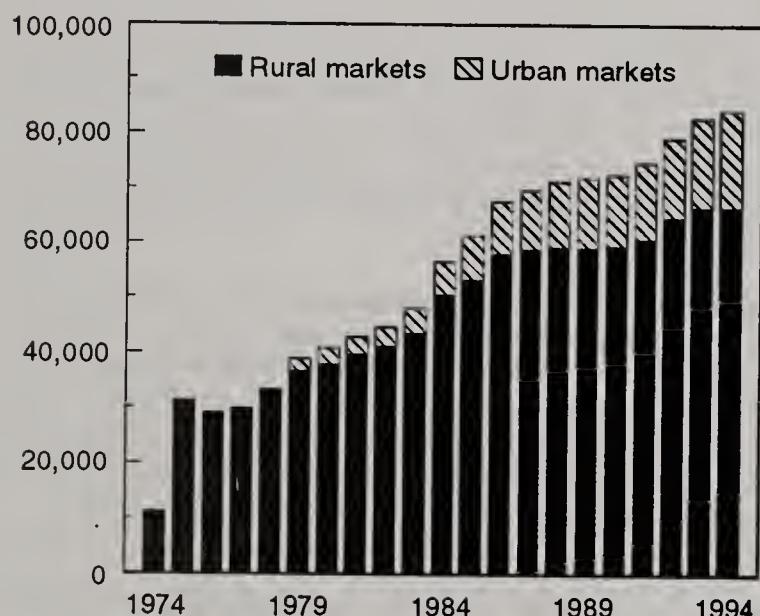
Competition in the market place encouraged wholesalers and retailers to improve the quality of products. Retailers found that there was profit in delivering a fresh, wholesome, clean, appetizing product to customers. In the past decade, the variety and quality of vegetables available in the market place improved substantially.

Government Leaders Fear Market Growth

In the early 1990s, open markets for vegetables, fruits, meats, grains, edible oils, and other food stuffs expanded very rapidly so that they began to market a larger share of total food supplies than state-owned stores. This general trend worried government and party officials—the government should control and manage institutions which affect the vital interests of the country. With the upsurge in rates of inflation came renewed interest in building institutions to control food prices.

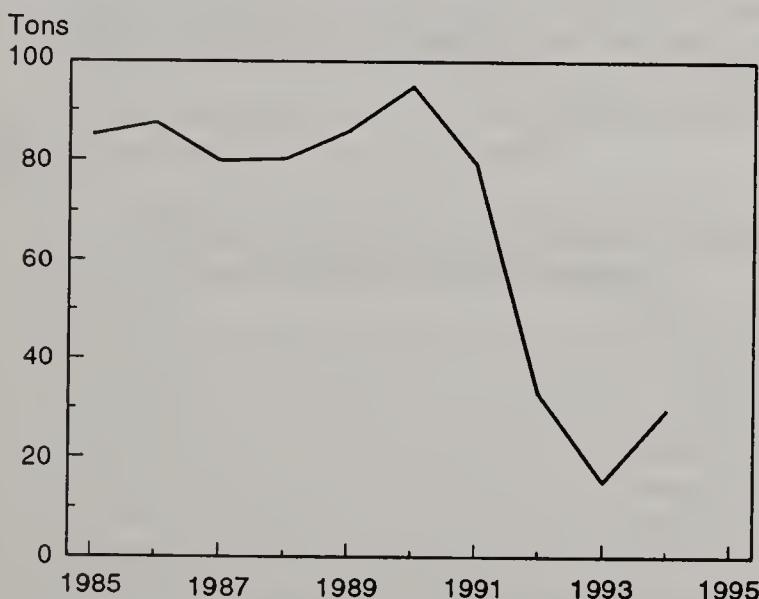
Li Lanqing, a Politburo member and a member of the Central Committee of CPC, noted that some people believe vegetable markets should be regulated by market forces. Li said in a socialist market economy, "...the government exercises effective regulation and control

Figure B-1
Number of Rural and Urban Open Markets, 1974-94



Source: SSB, Statistical Yearbook, 1995.

Figure B-2
Anhui Vegetable Company's Sales Fell



Source: F.W. Crook, "1995 China Trip Report," FAS/ERS, U.S. Department of Agriculture, September, 1995.

Table B-1--Urban vegetable consumption data, 1985-94

Item	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Per capita income (yuan)	749	862	1,012	1,192	1,388	1,523	1,713	2,032	2,583	3,502
Annual living exp (yuan)	673	798	884	1,104	1,211	1,279	1,454	1,672	2,111	2,851
Exp. for fresh veg (yuan)	41	48	54	69	80	79	86	100	118	152
Per capita fresh vegetable consumption (kg/cap)	144	148	143	147	145	139	132	125	121	121

Source: SSB, *China Statistical Yearbook*, various years.

through economic, legal, and necessary administrative means, while state cooperative commercial enterprises play the role of the main channels' in the distribution system (3)." The Ministry of Internal Trade is vigorously promoting government-owned chain stores as a means to recapture a larger share of food retailing.

Various jurisdictions in 1995 set ceiling prices for vegetables. For example, Beijing municipality published ceiling prices based on transactions in its five major wholesale markets. Wholesale prices for various vegetable varieties were collected from the city's six largest wholesale markets. Then a committee composed of representatives from the Price Bureau, the Industrial and Commercial Management Bureau, the Agricultural Bureau, and the Vegetable Company, Second Division of the Commerce Bureau, meet to set a guiding price (*zhidao jiage*). The committee takes into account transport, packaging, grading (culling out unsuitable products) and selling costs in determining the ceiling price.

In the long-run, the government efforts to use ceiling prices to constrain inflation likely will not succeed. The efforts to control prices will distort the functioning of the market and probably injure the interests of both producers and consumers. The use of political power to force more vegetables through state marketing channels likely will mean higher cost vegetables in the market place, less variety, and

less attention paid to quality. The central government's efforts to use the Ministry of Internal Trade retail system (store locations and warehouses) to introduce supermarket shopping centers may have some positive effects for the overall marketing of vegetables.

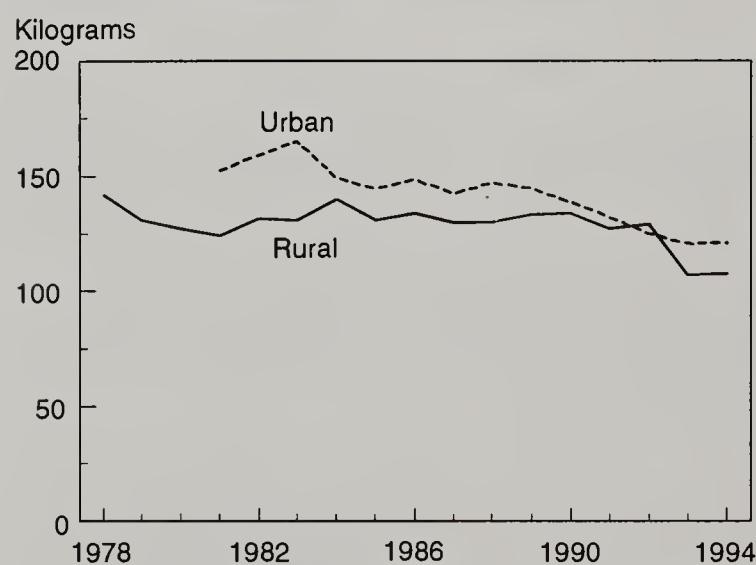
Changing Consumption Patterns

In the early 1980s, China's consumers ate large quantities of in-season vegetables because of poor storage, transportation, packaging, and marketing systems. As weaknesses in the marketing system were overcome, consumers began to eat higher quality vegetables and buy off-season products delivered from other growing regions.

Rural per capita vegetable consumption fell from 142 kilos in 1978 to 108 kilos in 1994, while urban consumption fell from 144 kilos in 1985 to 121 kilos in 1994 (figure B-3). Perhaps per capita vegetable consumption fell in part in this period because with higher incomes residents shifted from relatively heavy root crops, such as turnips, to more light weight leafy vegetables, such as spinach and lettuce.

Urban per capita incomes rose from 749 RMB in 1985 to 3,500 RMB in 1994. Urban consumer spending on fresh vegetables rose from 41 RMB in 1985 to 152 RMB in 1994, but their spending on fresh vegetables as a share of annual living expenditures remained fairly constant at about 6 percent. It seems urban residents spent more yuan each year to purchase less vegetables. Note that the average vegetable price rose from 0.29 RMB per kilo in 1985 to 1.26 RMB in 1994 (table B-1).

Figure B-3
China's Urban and Rural Per Capital Vegetable Consumption



Source: SSB, *Statistical Yearbook*, various issues 1980-1995, Beijing, Tongji Chubanshe.

Table B-2--Urban resident per capita fresh vegetable purchases, by income class, 1994

Income class	Kilograms
First decile	103.14
Second decile	110.48
Second quintile	116.93
Third quintile	118.91
Fourth quintile	125.45
Ninth decile	136.03
Tenth decile	144.59

Source: SSB, *Statistical Yearbook*, 1994, p. 264.

Table B-3--Selected vegetable exports, 1992-1994

Item	Quantity			Value		
	1992	1993	1994	1992	1993	1994
	1,000 tons			Million, US\$		
Canned mushrooms	120	128	145	147.9	136.2	162.9
Kidney beans	335	256	491	118.4	85.0	144.1
Broad beans	368	274	427	74.2	46.6	70.2
Dried sweet potatoes	565	399	555	72.8	43.0	51.7
Canned bamboo shoots	65	78	84	68.2	89.7	99.4
Garlic	128	320	169	67.6	110.6	75.6
Mushrooms preserved in salt water	54	52	59	61.7	49.1	67.8
Canned asparagus	40	64	79	60.4	76.2	80.4
Other dried vegetables	36	45	67	59.4	64.2	86.6
Other fresh and chilled vegetables	175	202	267	45.1	47.2	71.5
Other preserved vegetables	93	80	79	48.8	41.6	42.6
Other simply preserved vegetables	67	75	80	46.2	43.4	47.9
Other dried mushrooms	10	12	16	45.9	44.3	154.4
Frozen, other vegetables	38	57	93	35.9	54.5	85.8
Mushrooms	9	18	28	30.8	76.7	106.1
Mung beans	53	71	159	30.6	35.8	65.9
Bamboo shoots preserved in salt water	23	21	6	26.9	27.8	4.9
Small red beans (Adzuki)	52	74	103	26.2	61.2	83.3
Dried lichens Wel cai gan	3	3	3	23.1	22.3	24.8
Canned Ketchup	37	37	38	21.7	21.4	25.0
Other starch roots	30	41	50	21.3	26.8	42.4
Frozen beans	22	30	49	19.7	25.8	42.9
Canned fresh water ma ti	34	36	42	17.2	16.9	22.8
Dried ferns	4	5	3	15.0	14.3	12.1
Hei mu er (black wood ear) mushrooms	3	3	4	13.8	15.7	24.2
Gan bian beans	46	43	74	13.2	9.2	15.7
Dried Peas	64	24	42	11.2	5.0	8.9

Source: *China's Custom Statistics, 1992, 1993, and 1994*.

Low income residents tend to consume vegetables such as Chinese cabbage, spinach (Kong xin cai), green peppers, bean sprouts, and ginger. High income residents are reported to purchase round (head) lettuce, spinach, cauliflower, romaine lettuce, garlic shoots, cucumbers, silk melon, rapeseed, and garlic.

Urban household per capita fresh vegetable consumption survey data suggest that wealthy residents consume more vegetables than poorer ones (table B-2).

China's Vegetable Economy: A Big Market or a Major Competitor for U.S. Producers?

China is a major exporter of fresh and preserved vegetables. Exports rose from 2.2 million tons (\$721 million) in 1986 to 3.1 million tons (\$2.4 billion) in 1995.

About 75 percent of China's vegetable exports go to neighboring economies with large urban populations. For example, in 1995, China shipped about \$730 million dollars worth of vegetables to Japan, \$309 million to Hong Kong, \$43 million to Singapore, and \$62 million to the Republic of Korea. Vegetable exports to Asian markets were largely specialty products like mushrooms, special beans, canned bamboo shoots, asparagus, and edible ferns and fungi.

In 1995, China shipped the remaining 25 percent of its vegetable exports to countries in the European Union and other countries in the Middle East, Africa, and North and South America. Here the commodity mix was dominated by the shipment of dried potatoes for use as livestock feed, dried peas and beans, and specialty vegetables such as preserved mushrooms and bamboo shoots.

China Custom Administration's vegetable export data depict China as a major player in selected vegetable markets. We selected 28 items for which China exported more than 10 million U.S. dollars of product (table B-3). In 1995, China imported vegetables worth \$71 million. Major import items were dried legumes and dried cassava (probably used as a feed ingredient and not as a vegetable). U.S. vegetable exports to China in 1995 totaled US\$4.8 million. Major items were frozen potatoes, canned vegetables, dried beans, fresh peppers, and hops. In addition, significant quantities of U.S. vegetables are transshipped from Hong Kong to China.

U.S. vegetable imports from China in 1995 totaled US\$136 million. Major items included fresh or frozen peas, bamboo shoots, canned mushrooms, water chestnuts, and dried mushrooms. By 1989, U.S. mushroom imports from China reached 26,000 tons, but imports fell sharply from 1990 to 1994 because of sanitary conditions in canneries in China.

Imports recovered to 30,000 tons in 1995 as factory conditions improved and FDA certifications allowed more product to be shipped

China To Become Both a Vegetable Importer and Exporter in the Coming Decades

In the next decade (1996-2005), there likely will be good prospects for U.S. vegetable exports to China and East Asian countries because of the expected economic growth in the region and because the production, processing, packaging, storage, and transportation system is in place in the United States, and U.S. shippers can respond quickly to changes in market conditions. As noted above, China already is a major vegetable exporter in East Asian markets, but currently its exports are limited by weak links between farm gate and shipping ports.

In the decades beyond 2005, we expect China will have a comparative advantage in producing vegetables for export primarily because of its abundant rural labor resources. As

China invests in transportation and storage infrastructure and as firms improve grading and packaging standards, China is likely to become a fierce competitor in world vegetable markets.

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Hong Kong Looks Anxiously to 1997

In the year before China regains sovereignty of the Territory, Hong Kong is bracing itself for the changes to come. However, compared to the political sphere, changes within Hong Kong's agricultural sector and agriculture trade will not be as far reaching. Rather, under the stipulations of the Basic Law which will govern Hong Kong after 1997, the Territory will maintain its commercial autonomy, and trade flows should be undisturbed.
[M. Christina Valdecañas (202) 501-6133]

With less than 6,000 ha of arable land and very little domestic agriculture, Hong Kong is reliant on trade for almost 95 percent of its food supplies. In 1995, the Territory imported more than \$7.9 billion of foodstuffs. Over the past several years, imports from the United States have made up approximately 11 percent of Hong Kong's total agricultural imports, with major commodities including poultry, grapes, cotton, oranges, apples, and pistachios. Other major suppliers to the Hong Kong agricultural market include China and Australia.

Because Hong Kong acts as a transshipment center, the Territory imports a disproportionately high level of agricultural products. In 1994, Hong Kong re-exported approximately \$5 billion worth of agricultural products. The vast majority of these products were sent to China. Because large amounts of unofficial re-exports also occur, the true extent of trade flows of U.S. agricultural products to and from China is difficult to determine.

As per capita GDP continues to rise, Hong Kong's demand for food imports is projected to remain strong. Increasing preferences for consumer-ready goods and greater storage and shipping capacity have led to higher demand for high-value product imports. Although the Territory will revert to the sovereignty of the People's Republic of China in July 1997, under the stipulations of the Basic Law, Hong Kong will maintain its free-port status, and the Territory's import volume will likely continue.

Wary, But Still Growing

Hong Kong's GDP grew approximately 5 percent in 1995. This reflects a slight slowing of past trends, which many analysts attribute to the Territory's imminent reversion to China's sovereignty and the maturation of the economy. Although the Basic Law stipulates that Hong Kong will maintain commercial autonomy for 50 years from 1997-2047, the terms of the agreement leave much room for interpretation and have caused concern within the Territory's business community. As a result of this and other uncertainties, the real estate market remained sluggish, and consumer confidence decreased throughout the past year.

Despite the precarious economic climate and the first stages of government-funded construction of the new airport at Chek Lap Kok, Hong Kong maintained total foreign exchange assets of approximately \$57 billion in 1995. Per capita income in 1995 was estimated to be \$23,200, up 6.4 percent over the previous year. Foreign investment contin-

ued to flow into the Territory, with an estimated total of \$50 billion in projects invested in the Territory by mid-1994. Hong Kong's inflation rate rose to 8.7 percent in 1995, due in large part to adjustments within the property market and a strengthening of the U.S. dollar. (The Hong Kong dollar is pegged to the U.S. dollar and stood at an average 7.728 HK\$ to US\$ in 1995.)

Throughout the past few decades, Hong Kong has become an increasingly service-oriented economy. By 1994, an estimated 77 percent of the economy was involved in service activities, employing more than 20 percent of the 3 million-strong workforce. Manufacturing is the second largest sector. Major industries in Hong Kong include textile manufacturing, light-industry, and consumer-goods processing. Conversely, agriculture has never been a substantial part of Hong Kong's economy, and its share of the economy has been decreasing steadily over the past several years. In 1984, agriculture comprised 0.6 percent of total GDP; by 1994 it dropped to only 0.2 percent.

Reliance on World Markets

Because of the large amount of international trade flowing into and out of Hong Kong, events in international markets heavily influence the Territory's economy. In 1994, Hong Kong ranked as the world's eighth largest trading entity, exporting approximately \$172 billion worth of goods (including re-exports) and importing more than \$191 billion. During 1995, total exports increased 12 percent while imports increased by 14 percent.

Despite the growth of other ports in Asia and the uncertainties over the transition to PRC sovereignty, Hong Kong remains a major hub of activity for regional trade. Three-

Table C-1--Hong Kong's macroeconomic indicators

Indicator	Unit	1994	1995
Population	million	6.1	6.3
GDP growth	percent change	5.5	5.0
GDP	US\$ billion	130.6	149.0
Change In CPI	percent	8.1	8.7
Unemployment	percent change	2.0	3.3
M2 growth	percent change	18.0	16.5
Government	percent		
Budget	of GDP	1.64	-0.32

Sources: HK government statistics, the Economist Intelligence Unit, and DRI/McGraw Hill World Market Reports.

Imports, Exports, and Re-exports

The Hong Kong government defines "imports" as all goods "imported for domestic consumption and subsequent re-export." "Domestic exports" are considered to be those goods naturally produced in Hong Kong or the product of manufacturing processes in Hong Kong whose "shape, nature, form, or utility" has been "changed permanently." The term "re-export" applies to those goods previously imported into Hong Kong and exported without undergoing any type of manufacturing process. According to the Hong Kong government "diluting, packaging, bottling, drying, assembling, and sorting" do not constitute manufacturing processes. Most agricultural products imported into Hong Kong and later exported are considered re-export products.

Basic Law

According to the Sino-British Joint Declaration on the Question of Hong Kong (1984) and the subsequently ratified Basic Law of the Hong Kong Special Administrative Region (SAR) of the People's Republic of China which will govern the Territory after 1997, Hong Kong will maintain commercial autonomy until at least 2047. As such, the government of Hong Kong will be responsible for protecting the rights of individuals and legal persons and setting its own budget and tax structure. Hong Kong will not have to remit taxes to Beijing. In addition, the Hong Kong government will be responsible for formulating monetary and fiscal policies, and regulating such activities within the SAR.

Under the stipulations of the Basic Law, Hong Kong will maintain its "status of a free port and shall not impose any tariff unless otherwise prescribed by law." Hong Kong will also be allowed to continue its "participation in international organizations and international trade agreements (including preferential trade arrangements), such as the World Trade Organization and arrangements regarding international trade in textiles. Export quotas, tariff preferences, and other similar arrangements, which were made by the Hong Kong government prior to July 1, 1997, will remain valid." However, these arrangements will only apply to the Hong Kong SAR, not to other provinces within China. After 1997, Hong Kong will continue to face China's import regime. Hong Kong exports to China will not receive special consideration.

fourths of all imports and more than half of all domestic exports were to other Asian countries.

In recent years, budget constraints in China and the general slowing of the world economy have tempered Hong Kong's export earnings. Continuing bilateral frictions between the

United States and China and tensions between Beijing and Taipei have also had a negative impact on the Hong Kong economy. Because of Hong Kong's role as a regional entrepot, any disruption of U.S.-China or China-Taiwan trade ties has a noticeable effect on the Territory.

In 1995, trade with China accounted for almost 35 percent of all Hong Kong trade, while trade with the United States comprised 14 percent. Japan is Hong Kong's third largest trade partner, accounting for nearly 11 percent of total trade. Hong Kong's other major trade partners include the United Kingdom, Germany, and Taiwan.

As a free port, Hong Kong does not impose customs duties on most imported products (alcoholic beverages, some hydrocarbon oils, methyl alcohol, and tobacco are the only exceptions). Products entering the Territory are assessed a 0.0035-percent trade declaration charge. The Hong Kong government offers no export or import incentives to local industries. Textiles, machinery, electronics, and equipment parts and components were among Hong Kong's top domestic exports in 1995.

In recent years, industrialization and lower labor costs in the southern provinces of China have caused a shift in much of Hong Kong's manufacturing activity outside the Territory. However, such nearby processing activities have added to the growth in Hong Kong's re-exports. In 1995, approximately 56 percent of Hong Kong's re-exports originated in China, while 36 percent of re-exports went to China.

Diminishing Role for Agriculture

With a total population of 6.1 million and little domestic food production, Hong Kong is heavily reliant on food imports. Only 7 percent of the Territory's land is used for agricultural production. Vegetables are the main agricultural crops within the Territory. Livestock production has decreased substantially in recent years because of waste disposal laws. The government has attempted to decrease the Territory's dependency on food imports by converting fallow land in the New Territories into arable land, but has not achieved much success due to land encroachment from other sources, including expanding infrastructure projects and residential areas.

In 1995, Hong Kong's agricultural imports consisted mainly of meat and fruit products. In 1994, food imports increased more than 20 percent over 1993 levels. Hong Kong's agricultural exports (including re-exported commodities) also increased, growing 12 percent in 1995 to a total of \$2.7 billion. Major agricultural exports included processed foods and preparations.

During the coming years, better refrigeration techniques and greater container capacity are expected to increase demand for meat and fruit products and Hong Kong's ability to process them. After several years of debate with China's officials over the awarding of the contract to a non-China entity, Container Terminal 9 is scheduled to open within the next 2 years. The Hong Kong government

will also upgrade the capacity of existing ports and plans to dredge the main approach to the channel leading to the older ports in an attempt to maintain its role as the world's second busiest port.

U.S.-Hong Kong Agricultural Trade

Total U.S. agricultural exports (including re-exports) to Hong Kong increased more than 15 percent annually between 1990-95, making Hong Kong the seventh largest market for U.S. agricultural exports in 1995. Although U.S. agricultural exports increased more than 24 percent in 1995, this is slightly lower than the growth rate experienced in 1994. For the past several years, the best-selling U.S. exports to Hong Kong have been meat and fruit products. In 1994, Hong Kong ranked second only to Japan as the leading destination for U.S. high-value agricultural exports to Asia.

The increase in U.S. exports of high-value products reflects the Territory's changing dietary tastes, increased income, and greater demand for re-exports through Hong Kong. As the Territory's standard of living has increased, Hong Kong's population has demanded more consumer-ready products and more Western-style restaurants and fast-food chains. In 1995, consumer-oriented agricultural products comprised more than 73 percent of all U.S. agricultural exports to Hong Kong. Growing tourism of more than 8 percent in 1995 also fueled demand for high quality U.S. meat, vegetables, and fruits, as did the emergence of Western-style supermarkets.

In 1995, poultry products were the largest U.S. export to Hong Kong, increasing almost 60 percent over 1994 levels. Of this amount, approximately 70 percent was re-exported to China. U.S. exports of cotton, fresh fruit, fresh red meats, and hides and skins also did well in the Hong Kong market, posting increases of 13 percent, 9.3 percent, 77 percent, and 21 percent, respectively, over 1994 levels.

Because Hong Kong re-exports a large quantity of agricultural products to other countries of the region, the total amount of U.S. agricultural exports consumed by Hong Kong's citizens is difficult to determine. Unofficial transactions create an added difficulty in calculating actual flows. The largest destination for Hong Kong's agricultural re-exports is China, and many U.S. exports find their way to consumers in China via this channel. The tightening of trade in and out of China's special economic zones (SEZ) in southern China has created added motivation for using unofficial routes to transport goods into China. Previously, each SEZ enjoyed lower import tariffs relative to those faced by the rest of China.

What's Ahead for Trade?

In the months leading up to the Territory's reversion of sovereignty, Beijing has tried to assure Hong Kong of its intentions to allow economic freedom after 1997. Press reports from China's official news organization have emphasized the Territory's role as a regional financial hub and the great importance Hong Kong commands in the commercial transactions of the region. As a commercially autonomous

entity, Hong Kong will maintain its own customs system and will face the same barriers to the China market as faced by other economies (see box).

Assuming that the Basic Law is upheld, few changes to Hong Kong's current import regime and demand for agricultural commodities are expected. The Territory's overall free port status will be upheld, and U.S. agricultural exporters will continue to face Hong Kong's existing phyto-sanitary barriers and import duties placed upon tobacco products and beverages. Although administrative personnel within the different agencies will change, the overall structure of Hong Kong's commercial and trade activities assumably will remain in place until 2047.

Given increased income and a continued reliance on outside sources for food products, the level of Hong Kong's imports of agricultural products is expected to rise in the coming years. The Hong Kong Financial Secretary estimates that GDP will continue to grow at around 5 percent during 1996 and 1997 and that consumer spending growth will rebound to 4 percent. Domestic agriculture will continue to decline as a percent of GDP as industrialization and greater demand for housing continue to impinge upon potential arable land. However, the increased import levels will probably not reach the magnitudes experienced during the 1980's since income and population increases are not expected to be as strong.

Changing dietary patterns and a continued shift toward higher value, consumer-oriented goods, will likely lead the increased demand for U.S. goods. U.S. exports of bulk products, such as rice and wheat, will continue to find markets in Hong Kong, however the potential for growth in these areas is limited. Large increases in exports of U.S. bulk commodities will likely occur only if other major suppliers experience shortages, as was the case with U.S. exports of cotton to Hong Kong in 1994. Although U.S. exporters enjoy a large share of the current markets for fruit and meat, increased competition from Australia and Latin America is likely to temper growth in U.S. market shares for these goods.

Meats

Demand for meat imports will be especially high as domestic livestock production activities continue to decline and as better refrigeration techniques allow more meat imports to reach the Hong Kong market at lower prices. Although domestic meat consumption for the Territory is expected to remain relatively stable in the upcoming years, hovering around 1 percent growth annually, the continually strong tourist industry, increased demand for re-exports, and the emergence of more Western style restaurants and eating habits, will likely add to overall demand for meat. Moreover, as acceptance of chilled or frozen meat products becomes more widespread—not only in restaurants but also for home use—import levels from distant suppliers, including the United States, are expected to climb.

In 1995, imports of U.S. animal products made up about two-thirds of all U.S. agricultural exports to the Territory (poultry products made up more than 96 percent of that

amount). Hong Kong's imports of fresh and frozen U.S. poultry products grew more than 47 percent in 1995 over 1994. U.S. exports of red meat products also fared well. In 1995, U.S. exports of red meat products to Hong Kong increased nearly 77 percent above 1994. During the same time period, prepared and processed red meat exports experienced 27 percent growth.

Fruits and Vegetables

Fresh fruit exports are also expected to do well in the Hong Kong market. Although new entrants into the Territory's horticultural market have affected total U.S. market shares, due to the different growing seasons of the other suppliers, U.S. exporters face little direct competition—at least in the fruit market—and are still the top foreign supplier of fruits in the Territory. In 1995, fresh fruit imports from the United States increased 9.3 percent while processed fruits and vegetable imports grew 11 percent. Fresh vegetable imports from the United States declined slightly, facing increased competition from China and other Asian suppliers. Imports of grapes accounted for the largest fruit imports from the United States, followed by oranges and apples. Vegetable imports from the United States increased by 4.4 percent over the same period. The strongest growth of vegetable exports was with frozen products, although exports of fresh celery and cauliflower also did well.

Hong Kong is second only to Japan as the largest Asian importer of U.S. horticultural products. Though domestic consumption makes up the majority of demand, re-exports of U.S. fresh fruits from Hong Kong is also increasing. As Western-style restaurants continue to proliferate throughout the Territory, demand for frozen vegetables, especially potatoes, will also continue to rise.

Grains

Hong Kong's imports of grain commodities as a whole have been relatively flat or declining over recent years. Import demand for such products is expected to rise very slowly in the short-to medium-term, with the Territory importing only 778,000 metric tons of rice and wheat in 1996. According to USDA baseline estimates, domestic consumption of rice is expected to continue to fall by almost 1 percent annually, while domestic consumption of wheat will increase only slightly, averaging 0.5 percent yearly growth until the end of the century.

Although imports of wheat flour more than doubled between 1994 and 1995, imports of unmilled wheat fell sharply by more than 36 percent during the same period. U.S. rice exports to Hong Kong also declined, falling 50 percent below 1994 levels.

Other Commodities

U.S. exports of nuts and oilseeds continued to sell well in Hong Kong's market. Led by pistachios, with a 28-percent increase over 1994, exports of nuts are expected to continue to grow. Likewise, U.S. exports of oilseeds are expected to increase, especially given a lack of regional suppliers. In 1994/95, U.S. oilseed exports to Hong Kong grew by

nearly 57 percent. U.S. exports made up more than 11 percent of total Hong Kong oilseeds imports. Sales of U.S. processed oils also expanded in 1995.

U.S. exports of cotton increased more than 13 percent in 1995, and made up nearly 67 percent of Hong Kong's imports of U.S. bulk commodities. The continued relocation of textile and garment manufacturers from Hong Kong into southern China is likely to temper the Territory's direct cotton import demand. Demand for cotton as a re-export commodity, however, will likely increase to supply Hong Kong-run factories in southern China.

Due to a 9-percent increase of the tariffs placed on tobacco products imported into Hong Kong, U.S. exports of tobacco—both raw and manufactured—fell sharply in 1995. Assuming continued vigilance on the part of the Hong Kong government to decrease the amount of tobacco entering the Territory, U.S. exports of tobacco to Hong Kong are expected to continue to decline.

Whither Hong Kong?

With all the uncertainty surrounding the handover of Hong Kong's sovereignty to China and the implications for the Territory's future, it is difficult to discern the scope of U.S.-Hong Kong trade after 1997. Several scenarios exist.

Decreased Trade

In the unlikely event that Beijing reneges on its promises of continued commercial autonomy in Hong Kong, U.S. exports to Hong Kong and China will suffer as a result. If Beijing were to impose its customs regime on the Territory, drastically fewer U.S. agricultural exports would make their way to the Hong Kong market. Moreover, the volume of U.S. exports that currently transit through Hong Kong en route to other destinations, including China, would likely shrink.

No Change

Despite lingering doubts about China's intentions and because restricting Hong Kong's commercial activities would not be in China's best interest, a more likely outcome after 1997 is a continuation of the status quo. U.S. exporters will continue to enjoy Hong Kong's relatively open trade regime and Hong Kong will continue to demand U.S.-produced goods. Changes in administrative personnel may affect the day-to-day functioning and trade mechanisms through the Territory to some degree, and corruption may become a problem. However, the legal procedures of trade with Hong Kong will remain intact.

Conversely, because China's tariff structure *vis-a-vis* Hong Kong is not expected to change in the short-term, all exports to China through Hong Kong—including re-exports originating from the United States—will continue to face the same trade barriers as before 1997. Exports to China will not experience the more lenient regulations of Hong Kong's Customs, even if the goods transit through the Territory.

Increased Trade

A final scenario is that as Hong Kong becomes a part of China and as closer political ties result in increased interaction between PRC and Hong Kong business concerns, relations between the two will strengthen. Problems such as distribution and marketing within China will probably become less taxing for Hong Kong-based businessmen as they become more accustomed to doing business in China. Unofficial trade will likely also increase. For U.S. exporters, the closer ties will likely translate into increased levels of re-exports of U.S. goods to China's market as Hong Kong entities are better able to supply China's food import demands.

In whatever way China-Hong Kong relations evolve after 1997, the short- to medium-term prospects for U.S.-Hong Kong trade appear good. Increased per capita income and changing dietary patterns will likely bode well for U.S. agricultural exports, and better refrigeration and more storage capacity on both sides of the Pacific should

help facilitate greater trade of more high-value products from the United States.

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Appendix table 1--China's grain area, yield, and production, 1990-95¹

Unit	1990	1991	1992	1993	1994	1995
Million hectares						
Sown area						
Wheat	30.75	30.95	30.50	30.24	28.98	28.81
Rice	33.06	32.59	32.09	30.36	30.17	30.70
Coarse grains	27.02	26.79	26.00	25.66	25.89	27.21
Corn	21.40	21.57	21.04	20.69	21.15	22.77
Sorghum	1.55	1.39	1.30	1.37	1.37	1.20
Millet	2.28	2.08	1.87	1.83	1.67	1.50
Barley	1.21	1.20	1.25	1.23	1.20	1.20
Oats	0.58	0.55	0.54	0.54	0.50	0.54
Potatoes	9.12	9.08	9.06	9.22	9.27	9.52
Others ²	13.52	12.90	12.91	15.03	15.23	13.63
Total ³	113.47	112.31	110.56	110.51	109.54	109.87
Tons/hectare						
Yield ⁴						
Wheat	3.19	3.10	3.33	3.52	3.43	3.54
Rice	5.73	5.64	5.80	5.85	5.83	6.03
Coarse grains	4.13	4.17	4.18	4.59	4.39	4.64
Corn	4.52	4.58	4.53	4.96	4.69	4.92
Sorghum	3.66	3.55	3.65	4.60	4.60	5.00
Millet	2.01	1.62	2.07	2.19	2.22	2.47
Barley	3.25	3.28	3.20	3.41	3.17	3.33
Oats	1.17	1.18	1.19	1.19	1.20	1.19
Potatoes	3.01	2.99	3.14	3.45	3.26	3.37
Others ²	1.45	1.29	1.38	1.51	1.70	1.53
Total ³	3.93	3.88	4.00	4.13	4.06	4.25
Million tons						
Production						
Wheat	98.23	96.00	101.59	106.39	99.30	102.00
Rice	189.33	183.81	186.22	177.70	175.93	185.21
Coarse grains	111.69	111.64	108.64	117.84	113.68	126.34
Corn	96.82	98.77	95.38	102.70	99.28	112.00
Sorghum	5.68	4.93	4.74	6.30	6.30	6.00
Millet	4.58	3.36	3.88	4.00	3.70	3.70
Barley	3.93	3.93	4.00	4.20	3.80	4.00
Oats	0.68	0.65	0.64	0.64	0.60	0.64
Potatoes ⁵	27.43	27.16	28.44	31.81	30.25	32.12
Others ²	19.56	16.68	17.77	22.70	25.94	20.90
Total ³	446.24	435.29	442.66	456.44	445.10	466.57

¹ Data are official figures released by the SSB or the Ministry of Agriculture, except for: (1) 1994 total and individual coarse grain production; and (2) 1994 barley and oats, and other grain area and production.

² Consists of soybeans, pulses, and other miscellaneous grains. All of these items are included in China's definition of total grains.

³ PRC definition.

⁴ Calculated from area and production figures.

⁵ Converted to a grain-equivalent weight using a 5:1 conversion ratio.

Sources: China Agriculture Yearbook, 1989-95; China Statistical Yearbook, 1989-95; and China Statistics Abstract, 1996.

Appendix table 2--China's 1995 provincial grain, cotton, oilseed crop, sugar crop, and red meat production

Province	Cereals	Cotton	Oilseed crop	Sugar crop	Red meat
1,000 tons					
Northeast					
Heilongjiang	20,338	0	201	5,008	1,065
Liaoning	13,430	24	198	504	1,739
Jilin	18,679	0	256	836	967
North					
Shandong	37,615	471	3,150	12	3,717
Hebei	25,070	370	1,099	124	2,588
Beijing	2,527	0	0	0	270
Tianjin	1,956	11	40	0	165
Henan	30,593	770	2,980	207	2,959
Shanxi	8,162	91	223	397	561
Northwest					
Shaanxi	8,140	40	382	10	716
Gansu	5,502	23	317	1,070	577
Nei Monggol	9,141	0	702	2,635	740
Ningxia	1,888	0	56	495	103
Xinjiang	7,011	994	494	2,881	460
Qinghai	862	0	162	0	180
East					
Zhejiang	13,302	62	500	658	1,028
Jiangsu	31,080	562	1,595	234	2,178
Shanghai	2,063	4	158	49	243
Anhui	22,733	301	1,918	179	1,658
Central					
Hubei	22,640	586	1,894	736	2,507
Hunan	25,172	224	1,120	1,415	3,174
Jiangxi	15,082	119	1,036	2,000	1,934
South					
Guangdong	15,081	0	710	15,916	1,949
Guangxi	14,214	1	453	25,557	2,049
Fujian	8,245	0	233	2,486	1,060
Hainan	1,655	0	76	3,559	209
Southwest					
Sichuan	35,780	112	1,702	1,796	5,553
Guizhou	7,836	1	588	272	1,005
Yunnan	10,328	1	196	10,563	1,204
Xizang	NA	NA	NA	NA	NA
Total	416,123	4,765	22,437	79,401	42,538

Source: 1996 China Statistics Abstract. This is the third year in which this publication lists "cereals" (guwu) instead of grain (liangshi). The narrowly defined cereals (guwu) seems to exclude soybeans, potatoes, and other grains. Therefore, the provincial grain data in this table cannot be directly compared with tables from previous years.

Appendix table 3--China's oilseeds and cotton area, yield, and production, 1990-95

Item	1990	1991	1992	1993	1994	1995
1,000 hectares						
Sown area:						
Cotton	5,588	6,538	6,835	4,985	5,530	5,500
Oilseeds, USDA ¹	22,271	23,384	23,825	24,085	25,889	26,285
Soybeans	7,560	7,050	7,221	9,454	10,000	8,900
Oilseeds, PRC ²	10,900	11,530	11,489	11,142	12,081	na
Peanuts	2,907	2,880	2,976	3,380	3,778	3,809
Rapeseed	5,503	6,133	5,976	5,300	5,783	6,889
Sesameseed	669	680	746	753	690	na
Sunflowerseed	713	750	807	723	800	775
Other oilseeds ³	1,108	1,087	984	987	1,033	na
Kg/hectare						
Yield:						
Cotton	807	869	660	750	780	820
Oilseeds, USDA ¹	1,497	1,465	1,377	1,590	1,637	1,610
Cottonseed	1,371	1,475	1,121	1,330	1,390	1,560
Soybeans	1,455	1,377	1,426	1,620	1,600	1,520
Oilseeds, PRC ²	1,480	1,421	1,428	1,619	1,647	na
Peanuts	2,191	2,189	2,000	2,492	2,564	2,680
Rapeseed	1,264	1,212	1,281	1,309	1,296	1,410
Sesameseed	701	640	692	747	794	na
Sunflowerseed	1,879	1,467	1,820	1,770	1,880	1,810
Other oilseeds ³	901	729	831	845	660	na
1,000 tons						
' Production:						
Cotton ⁴	4,508	5,675	4,508	3,739	4,333	4,507
Cotton (1,000 bales) ⁴	20,705	26,065	20,705	17,175	19,901	20,700
Oilseeds, USDA ¹	33,329	34,526	33,040	38,290	42,378	43,283
Cottonseed	7,664	9,660	7,664	6,658	7,704	8,440
Soybeans	11,000	9,710	10,300	15,310	16,000	13,500
Oilseeds, PRC ²	16,132	16,383	16,412	18,039	19,896	na
Peanuts	6,368	6,300	5,953	8,421	9,682	10,200
Rapeseed	6,958	7,436	7,653	6,939	7,492	9,743
Sesameseed	469	435	516	563	548	na
Sunflowerseeds	1,339	1,420	1,472	1,282	1,500	1,400
Other oilseeds ³	998	792	818	834	682	na
Edible veg oil ⁵	4,454	4,868	4,786	5,209	5,965	6,260
Available meal ⁵	11,915	12,618	12,674	14,729	16,758	16,855

¹ Source: USDA/ERS Time Series Data. Total oilseeds include soybeans, cottonseed, peanuts, rapeseed, and sunflowerseed. Area includes cotton.

² Source: China Statistical Yearbook, 1989 - 1995. Total oilseeds exclude soybeans and cottonseed, but include other oilseeds.

³ "Other oilseeds" are calculated as a residual and include mainly huma (an edible oil-bearing flaxseed) and castor beans; oil-bearing tree seeds are excluded.

⁴ Cotton production is on a ginned-weight basis. 1 ton equals 4.592917 bales, and 1 bale equals 480 pounds.

⁵ Edible vegetable oil and available meal data come from USDA/ERS Time Series data. Edible vegetable oil include soyoil, cottonseed oil, peanut oil, rapeseed oil, and sunflowerseed oil.

Appendix table 4--China's yearend livestock inventory and product output, 1990-95

Item	1990	1991	1992	1993	1994	1995
Million head						
Yearend inventory:						
Hogs	362.41	369.65	384.21	393.00	414.62	441.49
Large animals	130.21	131.93	134.65	139.87	150.19	152.72
Draft animals	76.06	76.82	77.60	80.63	84.45	86.06
Cattle	102.88	104.59	107.84	113.16	123.32	126.67
Dairy cows	2.69	2.95	2.94	3.45	3.84	na
Water buffalo	21.69	22.01	22.20	22.55	22.91	na
Horses	10.17	10.09	10.02	9.96	10.04	97.00
Mules	5.49	5.61	5.61	5.50	5.55	5.38
Donkeys	11.20	11.16	10.98	10.89	10.92	10.61
Camels	0.46	0.44	0.40	0.37	0.36	0.35
Sheep	112.82	110.86	109.72	111.62	117.45	115.60
Goats	97.21	95.36	97.61	105.70	123.08	143.40
Poultry ¹	na	na	3,192.54	3,978.20	3,740.21	na
Number slaughtered:						
Hogs	309.91	328.97	351.70	378.24	421.03	480.41
Cattle	10.88	13.04	15.19	19.04	25.13	na
Sheep & goats	89.31	98.16	102.67	111.60	131.24	na
Poultry ¹	na	2,823.58	3,192.54	3,978.00	5,128.00	na
. Percent						
Slaughter rate: ²						
Hogs	87.8	90.8	91.5	98.5	107.0	116.0
Cattle	10.8	12.7	14.5	16.8	21.4	na
Sheep & goats	42.2	46.7	49.8	51.4	54.6	na
Poultry ^{1,3}	na	na	na	na	na	na
1,000 tons						
Production:						
Red meat	25,135	27,238	29,406	32,255	36,927	42,538
Pork	22,811	24,523	26,353	28,544	32,048	36,478
Beef	1,256	1,535	1,803	2,337	3,270	4,092
Mutton	1,068	1,180	1,250	1,374	1,609	1,968
Poultry meat	3,229	3,950	4,542	5,736	7,552	na
Cow's milk	4,157	4,644	5,031	4,987	5,288	5,624
Sheep & goat's milk	594	599	608	647	801	na
Sheep's wool	239	240	238	240	255	na
Mohair	17	17	17	19	25	na
Cashmere	6	6	6	7	7	na
Eggs	7,946	9,220	10,199	11,796	14,790	16,759

na = not available.

1 Poultry includes chickens, ducks, and geese.

2 Slaughter rate is slaughter divided by beginning inventory.

3 Data for 1990 and 1991 are estimates.

Sources: China Statistical Yearbook, 1989-94; China Agricultural Yearbook, 1989-94; and China Statistics Abstract, 1994.

Appendix table 5--China's major agricultural exports, by volume, 1991-95

Item	Units	1991	1992	1993	1994	1995
Swine, live	1,000 head	2,850	2,900	2,720	2,700	2,530
Poultry, live	1,000 head	47,520	51,770	51,270	52,300	52,630
Beef, fresh or frozen	Tons	132,040	30,000	20,000	20,000	20,000
Pork, fresh or frozen	Tons	116,635	50,000	60,000	100,000	150,000
Broiler, frozen	Tons	45,395	11,630	94,454	164,288	248,573
Rabbit meat, frozen	Tons	11,742	17,330	23,051	26,587	47,647
Eggs	Million	605	635	425	486	358
Food grain	1,000 tons	10,860	12,020	13,270	11,040	640
Rice	1,000 tons	690	950	1,430	1,520	50
Corn (maize)	1,000 tons	7,780	10,310	11,100	8,740	110
Soybeans	1,000 tons	1,110	660	370	830	380
Fruit	Tons	163,563	na	na	na	na
Oranges	Tons	43,414	61,392	81,047	127,428	131,798
Apples	Tons	24,082	38,317	119,419	107,170	108,956
Walnuts, in shell	Tons	4,992	na	na	na	na
Walnut meat	Tons	8,245	9,841	17,384	10,839	9,255
Chestnuts	Tons	33,939	29,138	38,399	37,680	36,117
Sugar	Tons	343,315	1,670,019	1,853,257	946,549	480,425
Natural honey	Tons	69,958	91,745	96,538	102,102	86,991
Tea	Tons	184,872	175,525	201,435	179,679	166,572
Canned food	Tons	657,660	na	na	na	na
Pork	Tons	128,409	53,075	71,511	69,302	63,822
Vegetables	Tons	340,265	na	na	na	na
Fruit	Tons	99,102	na	na	na	na
Beer	1,000 liter	43,634	57,140	84,210	110,220	130,910
Flue-cured tobacco	Tons	60,937	47,850	58,676	59,020	56,570
Goatskin	1,000 pieces	2,410	310	13.6	na	na
Furskin, raw	1,000 pieces	1,620	980	2,150	na	na
Mink skin	1,000 pieces	850	620	1,280	na	na
Raw silk	Tons	7,919	8,899	8,664	13,049	12,710
Cotton	Tons	199,980	144,620	149,953	108,147	21,619
Cashmere	Tons	2,020	na	na	na	na
Rabbit hair	Tons	6,419	5,686	5,733	10,677	4,395
Oilseeds, edible	Tons	572,231	630,000	1,000,000	1,490,000	910,000
Peanuts, shelled and unshelled	Tons	427,640	300,000	320,000	480,000	390,000
Vegetable oil	Tons	99,334	67,846	136,095	270,267	516,748
Cotton yarn	Tons	187,035	162,945	198,714	194,877	179,895

na = not available.

Source: China's Customs Statistics, 1990-95.

Appendix table 6--China's major agricultural exports, by value, 1991-95

Item	1991	1992	1993	1994	1995
U.S.\$1,000					
Swine, live	276,350	289,560	271,480	268,503	277,711
Poultry, live	82,040	93,340	90,340	105,446	125,344
Beef, fresh or frozen	203,850	38,850	27,850	30,813	33,907
Pork, fresh or frozen	185,660	76,420	62,670	128,376	245,347
Broilers, frozen	95,840	22,500	166,240	343,236	556,557
Rabbit meat, frozen	26,110	46,890	33,690	39,517	47,647
Eggs	27,820	24,470	15,420	18,080	16,666
Food grain	1,581,440	1,546,590	1,515,300	1,572,503	136,744
Rice	151,830	217,850	252,760	514,608	16,237
Corn (maize)	864,470	1,219,750	1,153,990	944,258	13,233
Soybeans	262,210	159,630	101,950	222,443	99,674
Fruit	78,700	na	na	na	na
Oranges	22,600	32,430	37,850	54,224	55,696
Apples	9,790	20,360	47,960	41,134	45,300
Walnuts, in shell	4,970	na	na	na	na
Walnut meat	19,280	24,320	41,570	27,414	25,172
Chestnuts	63,100	49,510	78,450	79,899	77,310
Sugar	120,650	620,050	596,220	321,372	187,096
Natural honey	61,390	80,060	70,200	75,016	87,484
Tea	376,060	361,890	355,680	294,339	274,748
Canned food	787,900	na	na	na	na
Pork	193,470	83,980	113,220	110,477	118,528
Vegetable	364,160	na	na	na	na
Fruit	76,670	na	na	na	na
Beer	25,920	31,900	41,640	41,118	53,084
Flue-cured tobacco	118,040	105,030	103,150	72,401	77,322
Goatskin	8,370	1,560	54	229	--
Furskin, raw	15,400	7,490	11,790	3,822	2,871
Mink skin	11,050	4,360	6,210	1,284	979
Raw silk	336,580	278,660	188,420	295,315	300,548
Cotton	360,960	210,590	190,070	149,102	46,800
Cashmere	163,860	na	na	na	na
Rabbit hair	105,220	110,250	110,250	136,963	71,088
Oilseeds, edible	448,470	279,600	407,350	635,318	494,270
Peanuts, shelled					
and unshelled	360,270	190,320	196,180	315,022	256,865
Vegetable oil	76,520	45,950	89,930	208,569	406,590
Cotton yarn	459,850	391,210	416,270	514,377	576,313

na = not available. -- = negligible.

Source: China's Customs Statistics, 1990-95.

Appendix table 7--China's major agricultural imports, by volume, 1991-95

Item	Units	1991	1992	1993	1994	1995
Food grain	1,000 tons	13,450	11,620	7,330	9,040	20,400
Wheat	1,000 tons	12,370	10,580	6,420	7,180	11,590
Barley	1,000 tons	751,910	828,891	na	510	na
Rice	1,000 tons	140	100	100	0	1,640
Corn (maize)	1,000 tons	--	--	--	30	5,180
Dried beans	1,000 tons	20	30	na	na	na
Soybeans	1,000 tons	--	121	na	na	na
Sugar	Tons	1,013,763	1,100,000	450,000	1,550,000	2,950,000
Coffee & coffee extracts	Tons	1,933	3,289	na	na	na
Cocoa beans	Tons	30,262	516	na	na	na
Natural rubber	Tons	306,161	270,000	270,000	340,000	320,000
Synthetic rubber	Tons	84,252	148,199	169,016	250,809	311,024
Logs	1,000 cu.m.	3,970	4,670	3,470	3,330	2,580
Cotton	Tons	370,524	280,000	10,000	500,000	740,000
Wool	Tons	106,243	208,995	237,459	319,086	283,668
Animal oil & fats	Tons	80,012	71,338	na	na	na
Edible vegetable oil	Tons	611,887	420,000	240,000	1,630,000	3,530,000
Other vegetable oil	Tons	1,091,734	650,000	840,000	1,580,000	200,000
Fertilizer, manufactured	Tons	18,175,189	18,590,000	10,210,000	12,660,000	19,910,000
Ammonia sulphate	Tons	253,203	54,746	na	na	na
Urea	Tons	7,005,128	7,480,000	3,610,000	3,130,000	6,960,000
Superphosphates	Tons	202,542	215,973	na	na	na
Potassium chloride	Tons	2,432,214	2,440,000	570,000	2,850,000	3,860,000
Compound fertilizer	Tons	7,033,791	6,540,000	3,560,000	5,140,000	7,300,000
Pesticides	Tons	31,211	39,304	24,061	31,830	

na = not available. -- = negligible.

Source: China's Customs Statistics, 1990-95.

Appendix table 8--China's major agricultural imports, by value, 1991-95

Item	1991	1992	1993	1994	1995
	U.S.\$1,000				
Food grain	1,642,740	1,705,020	1,004,920	1,272,574	3,607,139
Wheat	1,459,540	1,503,730	834,080	942,527	2,026,390
Barley	110,236	134,258	na	na	na
Rice	39,840	39,050	34,970	141,488	433,551
Corn (maize)	130	100	180	179	816,077
Dried beans	6,750	8,206	na	na	na
Soybeans	260	28	na	na	na
Sugar	256,270	255,300	110,940	407,859	897,581
Coffee and coffee extracts	6,770	4,738	na	na	na
Cocoa beans	34,840	942	na	na	na
Natural rubber	261,240	230,830	219,800	330,910	422,070
Synthetic rubber	127,970	176,090	198,050	251,057	327,100
Logs	454,310	495,540	459,130	430,372	368,372
Cotton	630,650	429,780	15,980	880,147	1,377,819
Wool	350,480	774,060	701,260	793,797	944,137
Animal oil and fats	29,150	25,713	na	na	na
Edible vegetable oils	289,090	195,010	118,290	986,339	2,315,548
Other vegetable oils	401,140	258,850	338,210	757,955	116,004
Fertilizer (manufactured)	3,229,490	3,003,700	1,479,150	1,938,248	3,741,502
Ammonia sulphate	16,780	3,775	na	na	na
Urea	1,216,430	1,148,320	457,650	423,096	1,426,975
Superphosphates	32,860	37,626	na	na	na
Potassium chloride	294,242	279,820	130,050	306,192	437,795
Compound fertilizer	148,187	1,244,570	594,570	972,019	1,616,783
Pesticides	183,144	203,650	122,360	137,198	159,743

na = not available.

Source: China's Customs Statistics, 1990-95.

Appendix table 9--U.S. agricultural exports to China, 1991-95¹

Item	Fiscal year				Calendar year			
	1991/92	1992/93	1993/94	1994/95	1992	1993	1994	1995
1,000 tons								
Wheat	4,226	2,187	2,357	3,823	2,982	2,717	1,913	3,649
Corn	0	0	0	3,989	0	0	36	5,357
Tobacco	0	0	0	--	0	1	1	162
Cattle hides, whole ²	162	163	582	1,332	127	207	709	1,564
Soybeans	136	61	70	0	136	98	33	199
Cotton	172	--	304	471	133	--	401	466
Vegetable oils	21	2	99	603	20	1	225	549
US\$ 1,000								
Wheat	369,727	238,252	203,504	510,845	272,951	278,391	166,228	499,791
Corn	0	0	0	454,176	0	0	3,510	629,253
Tobacco	0	0	0	767	0	0	0	767
Cattle hides, whole	7,341	8,216	31,386	77,721	6,240	10,370	40,082	87,590
Soybeans	29,682	13,931	17,714	0	29,682	22,999	8,645	50,657
Cotton	240,643	158	496,552	805,818	185,943	179	644,986	828,811
Vegetable oils	9,161	1,454	56,900	392,760	7,880	270	132,715	358,633
Others	34,368	60,041	71,215	370,968	41,164	63,791	84,208	177,498
US\$ millions								
Total agricultural	691	376	877	2,413	545	376	1,080	2,633
Total nonagricultural	6,188	8,763	5,516	8,022	6,794	8,243	8,207	9,115
Total	6,879	8,564	10,367	10,435	7,339	8,619	9,287	11,748

na = not available. -- = negligible.

¹ U.S. domestic exports, f.o.s.-value basis. Exports include agricultural product transshipments through Canada.

² Numbers in thousands.

Sources: U.S. Bureau of the Census, "U.S. Agricultural Exports," country by commodity, monthly printouts; and USDA, Economic Research Service, U.S. Foreign Agricultural Trade Statistical Report, various issues.

Appendix table 10--Major U.S. agricultural imports from China, by calendar year, 1991-95¹

Item	1991	1992	1993	1994	1995
U.S. \$1,000					
Meats and products, excluding poultry	239	1,064	1,439	524	1,234
Other meats, fresh or frozen	237	1,034	1,389	463	1,183
Poultry and products	43,691	45,191	34,508	47,740	62,923
Eggs	241	1,280	2,274	2,055	2,860
Feathers and down, crude	43,385	43,856	32,201	45,320	60,030
Hides and skins	695	481	223	276	115
Furskins	351	248	83	50	42
Wool, unmanufactured, apparel grades	1,017	773	4,129	1,833	2,988
Sausage casings	6,845	9,653	10,088	11,012	9,208
Silk, raw	5,420	2,439	1,403	1,875	1,188
All other animal products	11,103	13,278	9,519	10,737	16,239
Grains and feeds	8,760	10,556	13,325	20,965	24,972
Fruits and preparations	14,239	28,978	21,196	20,216	18,206
Fruits, prepared or preserved	14,122	28,787	21,075	19,904	18,054
Nuts and preparations	7,176	12,734	21,719	16,334	12,783
Vegetables and preparations	85,936	78,592	102,726	106,797	135,981
Vegetables, prepared or preserved	75,295	63,019	75,587	84,296	119,250
Mushrooms, canned	24,554	21,130	20,734	27,294	62,151
Water chestnuts	17,327	15,799	17,949	18,864	16,075
Sugar and related products	19,011	26,874	29,612	26,307	18,001
Spices	2,660	5,243	6,248	6,763	5,010
Beverages	7,437	7,077	7,411	5,041	7,193
Cocoa and products	13,545	20,685	30,554	26,200	25,710
Tea	25,837	29,035	29,956	31,835	28,451
Malt beverages	6,588	5,908	6,680	4,335	6,109
Oilseeds and products	3,054	3,447	4,664	4,166	3,183
Oilseeds and oilnuts	1,643	1,986	2,059	1,217	858
Oils and waxes, vegetable	1,380	1,441	2,579	2,873	2,259
Seeds, field and garden	14,722	11,125	11,776	14,858	16,925
Essential oils	18,095	21,724	20,217	24,956	28,841
Drugs, crude natural	11,559	14,539	24,721	18,840	17,312
All other vegetable products	5,303	7,425	7,490	6,835	7,465
Total agricultural commodities	327,930	378,776	450,851	440,261	479,240
Total nonagricultural commodities	18,527,111	25,135,552	30,974,515	38,340,739	45,075,760
Total imports	18,855,041	25,514,328	31,425,366	38,781,000	45,555,000

¹ Imports for consumption, customs-value basis.

Sources: U.S. Department of Commerce, Bureau of the Census, "U.S. Agricultural Imports," country by commodity, annual printouts; USDA, Economic Research Service, U.S. Foreign Agricultural Trade Statistical Report, various issues.

Appendix table 11--China's calendar year grain trade, by country, 1989-95

Item	1989	1990	1991	1992	1993	1994	1995
1,000 tons							
Net grain trade	10,350	8,833	3,691	-1,209	-6,355	-2,388	18,260
Total exports	6,209	4,850	9,721	12,826	13,675	11,526	1,431
Total imports	16,559	13,683	13,412	11,617	7,320	9,138	19,691
Wheat imports	14,880	12,527	12,367	10,581	6,424	7,299	11,585
Argentina	1,049	858	391	0	75	0	256
Australia	1,677	1,386	1,364	218	619	1,441	436
Canada	1,761	4,136	4,504	5,670	3,059	3,586	4,861
EC	1,594	2,143	1,242	1,340	57	30	2,187
United States	8,293	3,919	4,586	3,334	2,587	2,242	3,840
Flour imports	144	80	154	104	26	28	41
Hong Kong	7	15	26	30	5	6	4
Australia	1	0	0	34	3	0	0
Canada	17	0	43	0	2	1	1
EC	26	0	36	0	0	1	1
United States	4	1	2	6	2	6	6
Japan	84	60	43	32	11	12	27
Rice imports ¹	1,201	56	140	103	96	493	1,610
Taiwan	35	5	71	0	1	9	34
Burma	40	0	1	0	0	0	3
Korea, DPR	66	43	11	4	0	1	0
Thailand	1,002	5	49	95	93	354	1,140
United States	0	0	0	0	0	2	0
Vietnam	na	na	na	na	na	125	431
Coarse grain imports	314	1,020	751	829	774	1,318	6,455
Argentina	0	0	0	0	0	0	195
Australia	176	585	439	336	464	1,043	139
Canada	70	7	256	309	155	249	457
EC	0	0	0	138	67	0	547
Thailand	1	0	0	0	0	0	0
United States	54	356	31	0	22	0	5,181
Corn imports	68	368	0	0	0	0	7,999
Argentina	0	0	0	0	0	0	195
Australia	0	0	0	0	0	0	0
Canada	0	0	0	0	0	0	0
EC	0	0	0	0	0	0	0
Thailand	1	0	0	0	0	0	0
United States	54	356	0	0	0	0	4,975
Barley imports	246	652	751	829	774	1,318	1,274
Australia	176	585	439	336	464	1,043	139
Canada	70	67	256	309	155	249	457
EC	0	0	0	138	67	0	547
United States	0	0	31	0	32	0	78

continued--

Appendix table 11--China's calendar year grain trade, by country, 1989-95--continued

Item	1989	1990	1991	1992	1993	1994	1995
1,000 tons							
Total grain exports	5,298	4,867	9,717	12,887	13,708	11,526	1,431
Rice exports	314	325	688	948	1,374	853	44
Hong Kong	62	43	85	50	56	39	21
Iran	0	0	0	0	0	422	0
Macau	5	4	4	4	4	3	1
Sri Lanka	61	0	0	20	17	0	0
United Arab Emirates	5	9	4	11	16	3	1
Democratic Yemen	0	15	21	0	12	0	0
Angola	0	0	0	8	51	0	0
Guinea	15	0	16	79	91	18	0
Ivory Coast	0	0	15	0	223	15	0
Libya	20	0	49	89	0	33	0
Mauritius	47	42	80	32	41	36	0
Russia	--	--	--	--	126	20	3
Bulgaria	8	10	0	12	8	50	0
Czechoslovakia (Czech)	20	30	0	36	27	0	0
Germany	10	5	0	0	5	0	0
Poland	15	0	8	40	39	0	0
Romania	10	31	0	0	99	0	0
Switzerland	0	0	0	0	0	0	0
Brazil	0	0	0	0	5	0	0
Cuba	10	25	138	136	148	0	0
Indonesia	46	20	43	0	0	0	13
Coarse grain exports	3,502	3,789	8,226	10,971	11,535	9,211	348
Corn exports	3,502	3,404	7,782	10,340	11,097	8,739	106
Korea, DPR	296	246	216	586	376	209	11
Hong Kong	116	60	167	108	71	31	1
Japan	1,289	918	1,785	2,154	1,842	1,706	9
Malaysia	182	112	454	1,386	1,245	1,384	33
Philippines	32	36	19	0	0	0	0
Singapore	127	59	233	129	15	39	0
Iran	0	60	333	381	521	179	0
Poland	0	0	0	61	109	86	0
Russia	1,183	na	855	608	1,453	314	7
Mexico	0	0	18	0	0	0	0
Republic of Korea	na	931	3,494	4,144	4,016	3,449	24
Thailand	0	14	0	387	0	8	0
Kazakhstan	na	na	164	163	21	0	0
Uzbekistan	na	na	na	37	18	13	0
Ukraine	na	na	20	20	10	17	0
Sri Lanka	0	49	62	62	38	39	0
Indonesia	15	0	136	41	316	796	20
Sorghum (10070)	na	289	357	524	266	283	100
Buckwheat (10081)	na	71	65	88	121	115	106
Millet (10082)	na	3	4	13	22	29	18
Other cereals (10089)	1,013	22	18	6	29	45	18

continued--

Appendix table 11--China's calendar year grain trade, by country, 1989-95--continued

Item	1989	1990	1991	1992	1993	1994	1995
1,000 tons							
Total dry peas and beans	469	753	803	968	799	1,462	1,039
Peas (07131)	na	na	na	64	25	43	24
Chickpeas(07132)	na	na	na	0	0	1	1
Meng beans (071331)	na	143	126	53	71	159	184
Adzuki beans (071332)	na	32	32	52	74	103	73
Kidney beans (071333)	na	231	190	335	257	491	375
Vigna spp (071339)	na	na	na	12	16	60	34
Lentils (07134)	na	na	na	46	43	75	46
Broadbeans (07135)	na	237	310	368	274	427	233
Other dry beans (07139)	na	118	145	38	39	103	69

na = not available.

' Only imports of semi-milled or milled rice.

Source: China's Customs Statistics, 1989-95.

Appendix table 12--China's calendar year trade in other agricultural commodities, by country, 1990-95

Item	1990	1991	1992	1993	1994	1995
Tons						
Imports:						
Cotton	416,733	370,524	276,559	13,374	502,142	741,711
Pakistan	29,084	31,149	15,285	3,223	5,089	5,343
Egypt	1,319	0	133	0	2,082	2,230
Sudan	41,445	4,506	5,581	5	27,617	35,380
United States	210,175	229,252	165,577	1,508	296,355	482,874
Sugar	1,132,122	1,013,764	1,079,932	419,636	1,474,423	2,571,977
Australia	142,464	105,508	183,994	153,962	641,825	346,084
Cuba	868,406	738,333	773,759	251,520	419,280	652,331
Thailand	74,409	122,661	81,729	14,000	411,621	991,055
United States	574	115	0	1	1	65
Soybeans	na	801	120,688	98,586	51,589	293,966
United States	na	na	71,311	90,773	34,710	143,915
Exports:						
Cotton	167,282	199,980	144,620	150,711	108,147	216,189
Hong Kong	2,279	5,579	9,036	3,818	9,202	2,788
Indonesia	16,573	33,118	37,945	61,679	44,548	5,520
Japan	47,308	50,511	31,278	21,643	16,749	9,877
Thailand	11,635	10,238	16,444	14,257	14,019	693
Rep. Korea	25,100	51,857	18,214	11,371	4,535	38
Soybeans	940,340	1,108,983	658,236	373,178	831,805	375,399
Hong Kong	11,511	10,238	7,882	30,560	4,958	3,430
Indonesia	278,693	455,169	165,113	43,346	343,669	88,502
Japan	278,227	280,540	260,340	196,800	193,858	191,092
Malaysia	54,164	240,424	169,642	36,323	134,551	36,422
Singapore	4,706	7,896	2,247	1,356	769	780
Russia	221,199	7	7	149	29,963	50
Rep. Korea	9,756	36,867	46,784	1,995	20,032	3,925
Peanuts	na	370,912	294,438	305,055	462,271	277,925
Hong Kong	na	27,287	27,484	30,370	14,125	10,471
Indonesia	na	15,583	24,353	29,802	57,789	71,960
Japan	na	22,745	20,116	25,125	24,182	23,196
Korea	na	18,160	14,807	7,622	11,571	10,673
Philippines	na	1,627	373	1,437	20,696	45,204
Netherlands	na	134,570	111,410	117,131	199,724	113,846
Russia	na	46,201	4,098	6,331	21,039	17,403

Source: China's Customs Statistics, 1989-95. Commodity code: cotton (uncombed cotton), 5201; sugar (raw cane sugar), 170111; soybeans, 1201.

Appendix table 13--China's other agricultural output, 1989-95

Item	1989	1990	1991	1992	1993	1994	1995
1,000 tons							
Sugar crops	58,038	72,145	84,187	88,080	76,240	73,452	79,401
Sugarcane	48,795	57,620	67,898	73,011	64,194	60,926	65,417
Sugarbeets	9,243	14,525	16,289	15,069	12,048	12,526	13,984
Tobacco	2,830	2,627	3,031	3,499	3,451	2,238	na
Flue-cured	2,405	2,259	2,670	3,119	3,036	1,940	2,072
Tea	535	540	542	560	600	588	588
Jute and hemp ¹	660	726	513	619	672	354	371
Silk cocoons	488	534	584	660	756	844	760
Aquatic products	11,520	12,370	13,510	15,570	18,230	21,430	25,250
Rubber	243	264	296	309	326	374	424
Fruit	18,319	18,744	21,761	24,400	30,112	34,992	42,114

na = not available.

¹ Hemp data are on a processed basis (conversion is 2kg raw equals 1kg processed).

Sources: 1995 Statistical Yearbook; and 1996 China Statistics Abstract.

Appendix table 14--China's average US\$ exchange rate, 1987-95

Item	1987	1988	1989	1990	1991	1992	1993	1994	1995
RMB/\$US									
Average exchange rate	3.7221	3.7221	3.7651	4.7832	5.3234	5.5146	5.7620	8.4462	8.3174

Source: IMF International Financial Statistics, various issues.



SUMMARY OF REPORT

U.S. Department of Agriculture ♦ Economic Research Service

U.S. Farm Exports to APEC Forum Members Up 23% in FY1995, to Record Highs

May 1996, AER-734

Contact: Sophia Wu Huang, (202) 219-0679, sshuang@econ.ag.gov

More than 60 percent of U.S. agricultural exports in fiscal 1995 went to the members of the Asia-Pacific Economic Cooperation Forum (APEC). U.S. exports to APEC surged 23 percent over FY1994, reaching a record \$33 billion. *APEC Agriculture and Trade*, a new study by USDA's Economic Research Service, reports that 90 percent of U.S. farm exports to APEC went to 7 markets: Japan, Canada, Mexico, South Korea, China, Taiwan, and Hong Kong.

U.S. agricultural exports rose to all APEC members in 1995, except for Mexico and Brunei. Major factors underlying the trade increase are growing middle-class populations, lowered trade barriers, a weak U.S. dollar, and supply/demand developments in world markets.

The most dramatic growth of U.S. sales in fiscal 1995 was in bulk exports, which grew 34 percent over the previous year to reach \$13.5 billion, largely part because of grain shortages in **China**. China shifted from being a net grain exporter to a major net importer, allowing the United States not only to gain a large share of the new Chinese market, but also to reclaim markets it had lost to China in East and Southeast Asia.

Even North Korea purchased U.S. corn in 1995, the first ever sale of U.S. corn to that country. In another first, North Korea acknowledged a chronic deficit in its grain supply and subsequently received considerable amounts of concessional food shipments from nearby APEC members.

Because of its size, China exerts a large influence on world markets for agricultural products. The Economic Research Service projects that even though China's grain production will expand by about 1 percent per year

Members of the APEC Forum include:

Australia, Brunei, Canada, Chile, China, Hong Kong, Indonesia, Japan, Malaysia, Mexico, New Zealand, Papua New Guinea, Philippines, Singapore, South Korea, Taiwan, Thailand, and the United States.

in the next decade, China's grain imports will also increase, as a growing population, rising incomes, changing diets, and limited agricultural land resources cause total consumption to increase faster than production.

Indonesia, Thailand, Malaysia, and to a lesser degree the **Philippines**, have become rapidly expanding markets (up 117 percent in the last 5 years) for U.S. farm exports because of their large populations, buoyant economic performance, and per capita incomes at levels where food is still an important component in consumption.

The United States also holds a large and stable share of the import markets in land-scarce **Japan, South Korea, Taiwan**, and **Hong Kong**, which together have accounted for a third of total U.S. farm exports over the last 10 years. Liberalization of formerly severe restrictions on agricultural imports, increasing price competition, rising incomes, and the Westernization of diets, will promote the future growth of East Asian markets, particularly for high-value and processed food products. If their applications to join the World Trade Organization are accepted, both China and Taiwan would be required to reduce substantially their trade barriers to agricultural imports, which would boost U.S. sales.

To Order This Report...

The information presented here is excerpted from *APEC Agriculture and Trade: Asia-Pacific Economic Cooperation Region Buying More U.S. Consumer-Ready Food Products*, AER-734, Sophia Wu Huang (ed.).

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Since the mid-1980s, **Canada** has provided an important growth market for U.S. farm exports. Trade expanded especially rapidly since 1989, when the U.S.-Canada Free Trade Agreement (CFTA) started eliminating barriers to trade over a 10-year period. (CFTA evolved into the North American Free Trade Agreement, or NAFTA, when Mexico joined the group in January 1994.) The United States has long been Canada's largest farm export market. In fiscal 1995, the United States imported \$5.4 billion of agricultural products from Canada, while Canada imported a record \$5.8 billion from the United States, making it the world's second largest importer of U.S. farm products (following Japan).

Because the United States and Canada share common interests in agriculture and in agricultural trade, trade between them continues to grow in spite of several unresolved disputes. Recent agricultural policy changes in Canada, especially the elimination of the Western Grain Transportation Act freight subsidies, will significantly affect future Canadian production and trade patterns. These subsidies encouraged the production of grains and oilseeds and underwrote the exporting of unprocessed farm products overseas, where they competed with U.S. farm exports.

Reciprocal trade liberalization under NAFTA fostered

rapid growth in agricultural trade between Mexico and the United States. In 1994, the first year of NAFTA, the U.S. agricultural trade surplus with Mexico nearly doubled, reaching \$1.6 billion, the largest surplus ever. The devaluation of the Mexican peso in December 1994 and Mexico's subsequent sharp economic slowdown, however, caused U.S. agricultural exports to Mexico to decline by 10 percent to \$3.7 billion in fiscal 1995. At the same time, largely due to more favorable terms of trade following the peso's devaluation, U.S. agricultural imports from Mexico surged by 33 percent to \$3.7 billion. Despite the recent setbacks to U.S. exports to Mexico, the long-term potential of U.S. farm exports to Mexico remains good.

Chile is the next country in line to become a member of NAFTA. Although Chile is not a major market for U.S. exports, its prosperity has caused many Latin American countries to emulate its policies, for example, by reducing import tariffs. The terms of Chile's accession to NAFTA could set precedents for further Western Hemisphere integration. Although some subsectors of U.S. agriculture would benefit from increased exports while others would face greater competition from imports, the overall impact of Chile's accession to NAFTA would be minor, both because Chile is such a small market and because its tariffs are already low.

Members of the Asia-Pacific Economic Cooperation Forum



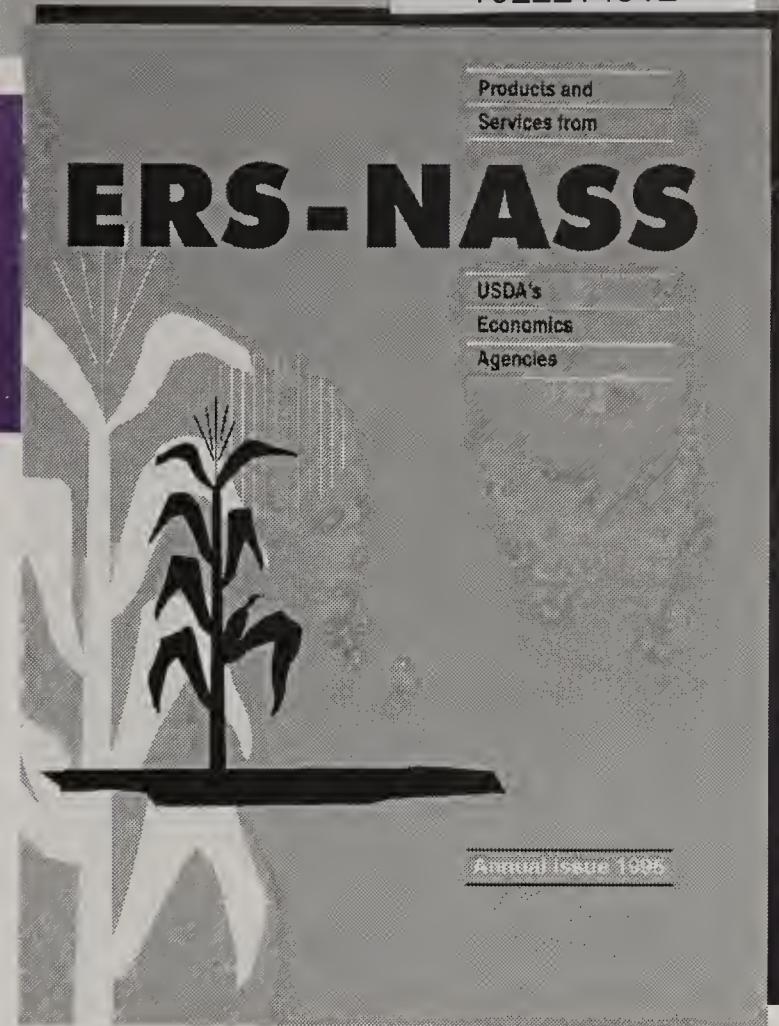


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